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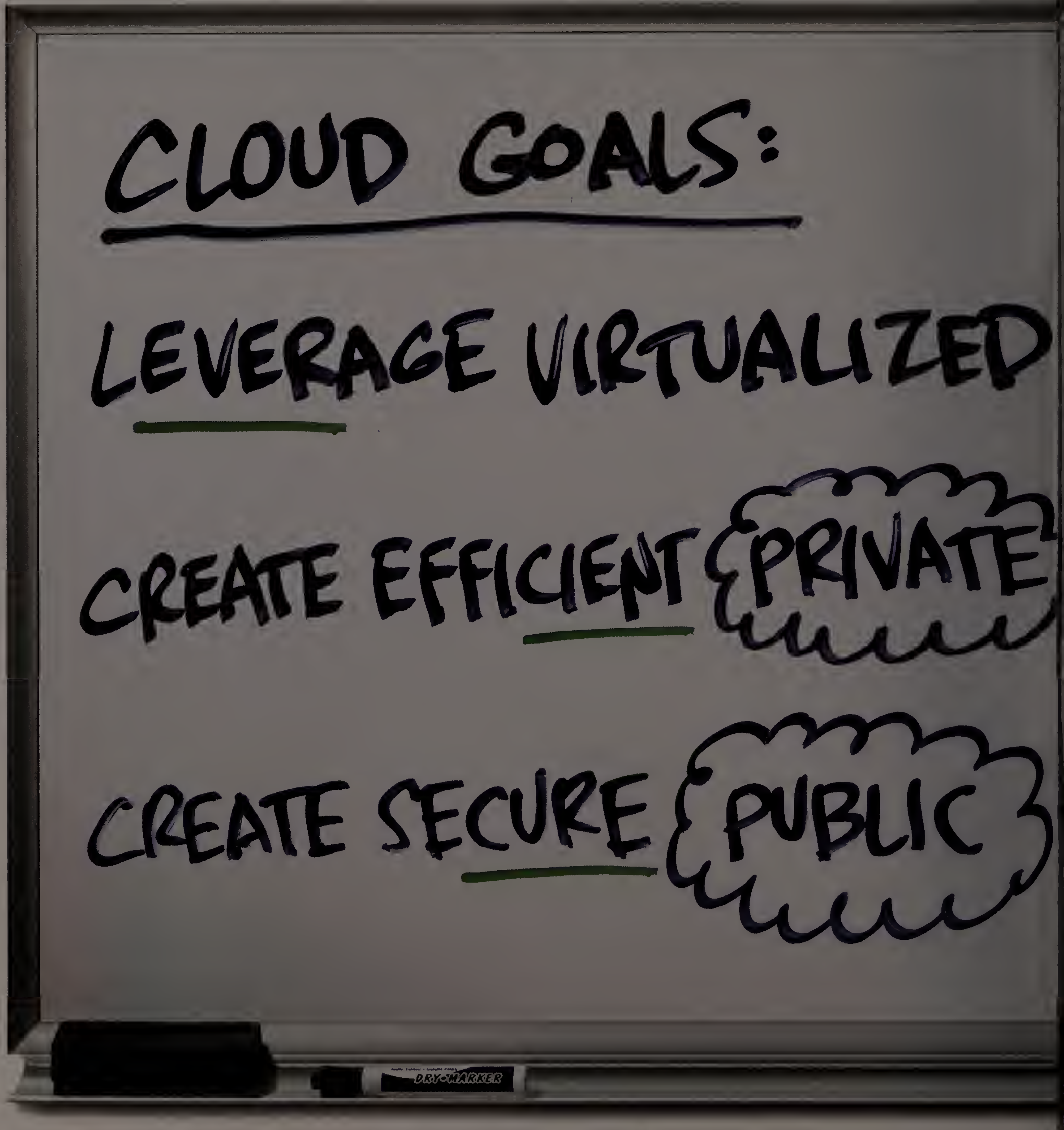

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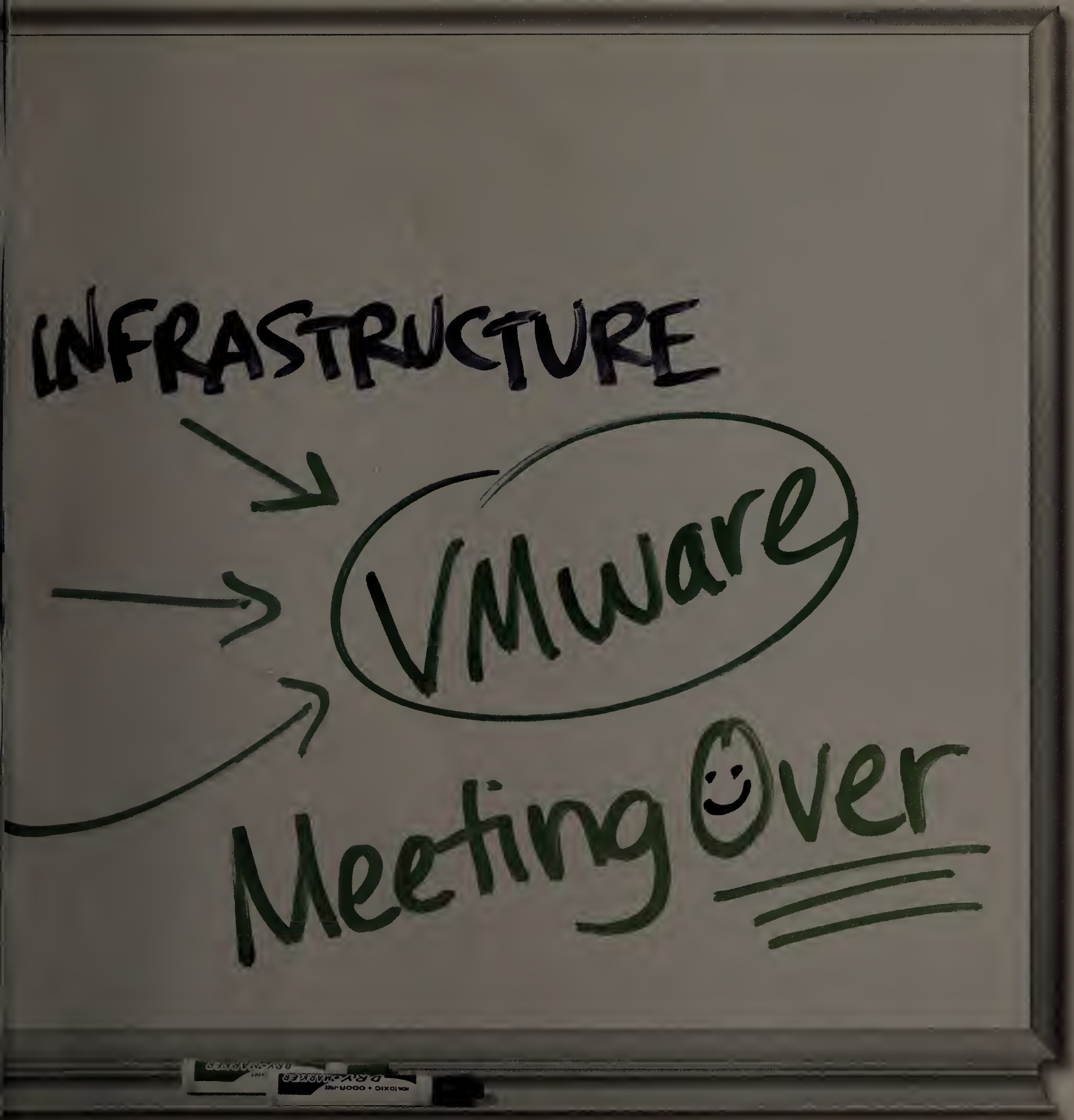

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EMERGING TECHNOLOGY

IBM Touts Quantum Computing Advance

SCIENTISTS AT IBM RESEARCH say they have achieved a major breakthrough in quantum computing that will allow engineers to begin creating a full-scale quantum machine.

The breakthrough reduces data error rates in elementary computations while maintaining the integrity of mechanical properties in quantum bits of data known as qubits.

A quantum computer could have exponentially greater processing power than today's conventional CPUs, according to Mark Ketchen, a manager at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y.

Quantum machines are still 10 to 15 years away. But the recent advancement opens the door to experimentation with new microfabrication techniques, IBM said. "We're finally to the point where devices are getting good enough [that] data checking and error correcting [are] possible," Ketchen said. "There's a lot of excitement."

In contrast to today's silicon-based semiconductors, IBM's superconducting qubits are made using established silicon-microfabrication techniques but are produced on a sapphire chip. This offers the potential to one day manufacture thousands or millions of qubits.

IBM isn't alone in this endeavor. Yale University and the University of California, Santa Barbara, are doing similar research. But Ketchen argued that only IBM has the ability to actually fabricate quantum chips.

He noted that current accuracy rates of 95% for operations need to climb to 99% for commercial production.

– Lucas Mearian

SECURITY

Carrier IQ Hopes To Allay Users' Privacy Concerns

Carrier IQ executives said they hope that customers are once again recognizing the value of the data that their company's software collects, after some operators disabled the software following a privacy uproar late last year.

The company's software sends information about a phone's performance to network operators, which use the data to learn more about performance issues.

"Some of our customers have been using this data for five years. It's deeply embedded in how they operate," said Andrew Coward, vice president of marketing and product management at Carrier IQ.

Coward claimed the company didn't lose any customers following last year's release of a research report that showed that its software was logging keystrokes, unbeknownst to end users.

He maintained that Carrier IQ's software isn't to blame. Rather, some implementations of the software "led to information being written into these files that never should have been," he said.

Operators have been pushing out firmware updates to correct any problems. According to Coward, Carrier IQ has also added a qualification step to ensure the software is implemented correctly and that no private data is left on devices.

- NANCY GOHRING,
IDG NEWS SERVICE

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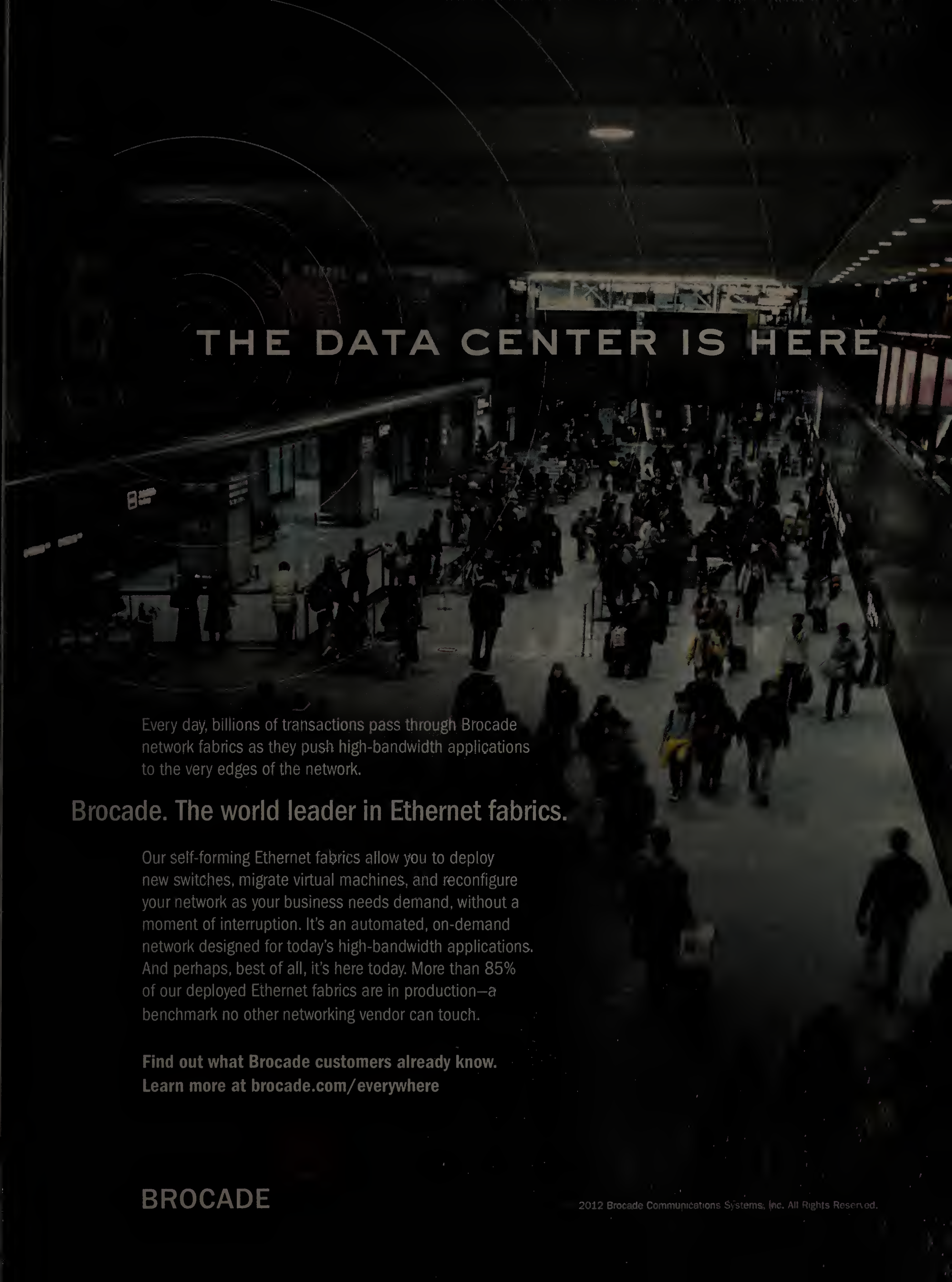

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BETWEEN THE LINES
By John Klossner

"CAN'T WE HIRE SOMEONE TO BLAME OUR IT OUTAGES ON?"

HIGH-PERFORMANCE COMPUTING

Europe Outspends U.S. on Exascale

SECRETARIAT WAS famous for coming from behind and winning the race, and the same may be true for the U.S. in the global push to build exascale computing systems. But for now, when it comes to delivering the funding needed to build these systems, the U.S. is just getting out of the gate.

The European Commission recently announced that it is doubling its investment in exascale computing research from €630 million to €1.2 billion (about $1.6 billion). The announcement comes as some European governments are adopting strict austerity measures to prevent loan defaults.

The Europeans announced their exascale computing plans in the same week that the White House released its fiscal year 2013 budget, which calls for a third year of anemic funding for exascale development. The Department of Energy had requested nearly $91 million for exascale efforts in fiscal 2012, which began Oct. 1, and it received $73.4 million. That was up from $28.2 million spent on exascale in fiscal 2011.

In the budget proposal delivered to Congress, the White House requested $89.5 million for exascale research, although there's some money earmarked for exascale tucked away in other DOE budgets and in some defense line items.

But even that level of investment is still "peanuts" for a program that may require billions of dollars to really get off the ground, said Earl Joseph, an IDC analyst.

Meanwhile, China is moving ahead with its own plans and has the financial backing and human talent to make progress. "[Europe's] biggest threat is that China is just going to bury them," Joseph said. The new EC funding may allow Europe to "maybe get a little bit ahead of the game."

Challenges include reducing energy consumption by a factor of 100 and developing new programming models, the EC said.

– Patrick Thibodeau

Micro Burst

Google has offered to award as much as

$1 million

to a security researcher who can sucessfully hack its Chrome browser.

E-BUSINESS

'Google Bucks' Never Paid Off, Schmidt Recalls

Google at one point considered issuing its own currency, to be called Google Bucks, said the company's executive chairman, Eric Schmidt, at the recent Mobile World Congress in Barcelona.

Schmidt recalled the erstwhile Google currency plan during a Q&A session with the audience following his MWC keynote speech.

The idea was to implement a peer-to-peer money system, he said. But Google discovered that the concept is illegal in most countries. Governments are wary that such schemes create opportunities for money-laundering, he explained.

"Ultimately we decided we didn't want to get into that because of these issues," Schmidt said.

Addressing other matters, he hinted that Google might be preparing for a battle in China once its acquisition of Motorola is complete. "Google's been willing to take on China," he said in response to a question about whether Google expects to continue to ignore theft of Motorola intellectual property in China, as Motorola had been doing.

Noting that the acquisition hasn't closed yet, Schmidt said, "We've taken a pretty strong position on IP. We are well aware of the issues."

– NANCY GOHRING, IDG NEWS SERVICE

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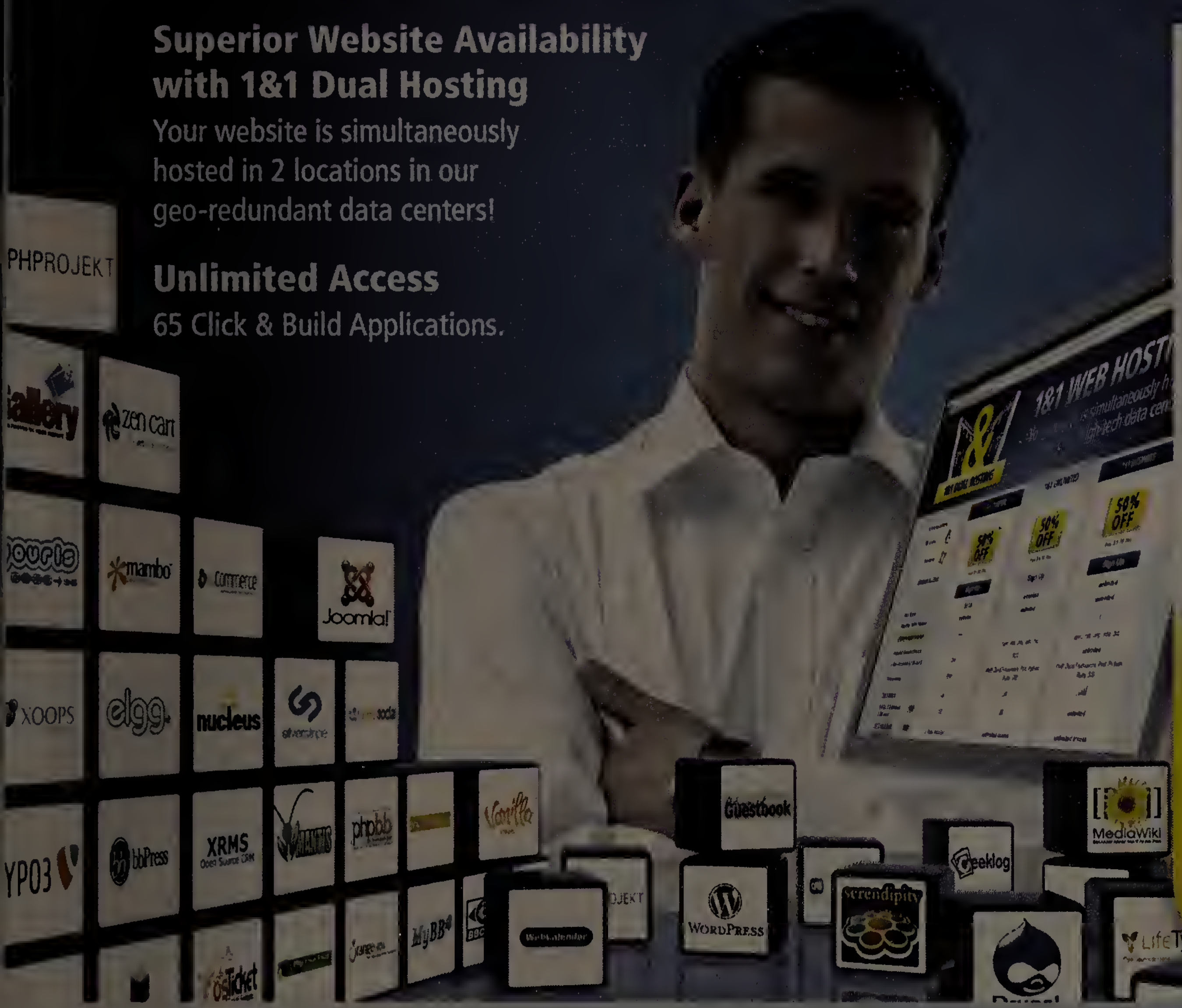

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Who's to Blame When IT Breaks?

Assessing fault in data center incidents could pit internal IT operations staffers against contractors and vendors.

By Patrick Thibodeau

THERE'S ALWAYS a reason why things break in data centers, and the powers that be can usually find someone to blame — whether that someone is an IT operations staff member, an OEM, a systems integrator or a third-party service provider.

Often, the offender leaves clear fingerprints, such as a mislabeled component or a process that wasn't updated. Some incidents are clearly due to the oversights of multiple parties.

Uptime Institute, a professional group whose membership includes data center managers from many industries, has collected and studied incident data for almost 20 years and concludes that the majority of problems are caused by outside parties like contractors or vendors, with a smaller but still sizeable percentage being the fault of internal IT staffers.

Since 1994, Uptime has collected data on some 5,000 abnormal incidents, which it defines as events in which a piece of equipment or infrastructure component did not perform as expected. The incident reports are submitted voluntarily by Uptime members.

Uptime said its analysis found that the percentage of abnormal incidents attributable to operations staff was 34% in 2009, followed by 41% in 2010, and 40% last year.

Third-party operators that work on a customer's data center or that supply equipment to it, such as manufacturers, vendors, factory representatives, installers and integrators, were found responsible for 50% to 60% of the incidents reported from 2009 to 2011.

The analysis likely faces criticism from all sides, because neither internal IT operations personnel nor data center vendors take blame easily, except when it could affect the bottom line.

For instance, Ahmad Moshiri, director of power technical support at Emerson Network Power's Liebert Services unit, said that vendors in some cases do accept blame for a problem they feel is caused by an oversight by internal IT operations.

"The vendor gets caught up in a sensitive spot," he said. "It doesn't want to put the client — a facilities manager — in a difficult position. It's very touchy."

Uptime said it also found that internal IT operations staffers are responsible for the majority (60%) of the worst abnormal incidents — those that resulted in a system or data center outage.

Hank Seader, managing principal for research and education at Uptime, said those results could be misleading as well. Often, it's "the design, manufacturing, installation processes that leave banana peels behind, and [it's] the operators who slip and fall on them," Seader said.

David Filas, a data center engineer at Novi, Mich.-based healthcare provider Trinity Health, added, "The designs and actions of engineers, architects, and installation contractors can have latent effects on operations long after construction. Outside forces can make or break the data center just as easily as internal forces."

He noted that Trinity Health suffered through a data center outage because an emergency power-off bypass circuit was not built to spec when the facility was constructed years earlier.

Filas suggested that IT's increased reliance on contractors to build or update data centers exacerbates the risk of problems.

> "The vendor gets caught up in a **sensitive spot**. It doesn't want to put the client – a facilities manager – in a difficult position.
>
> [illegible] DIRECTOR OF POWER TECHNICAL SUPPORT, EMERSON NETWORK POWER'S LIEBERT SERVICES UNIT

Electrical contractors, for example, may not understand the specific needs of a data center, he said, adding, "We are frequently questioned on why we provide redundant power to racks."

Emerson's Moshiri cited process and procedural issues as leading causes of data center problems, particularly when multiple vendors are involved and a high degree of coordination is needed. ◆

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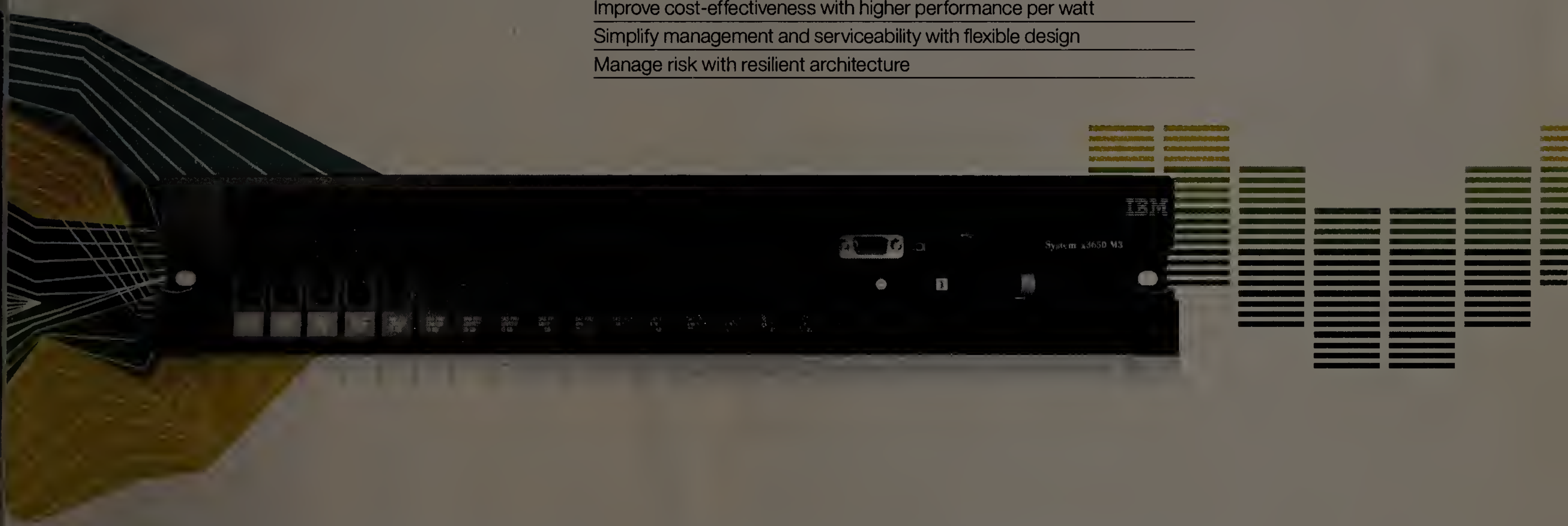

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[1] TBR 3Q11 x86-Based Servers: Corporate IT Buying Behavior & Customer Satisfaction Study, November 2011.

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IT Faces Up to Mobile Device Test

The consumerization of IT offers workers many opportunities – and creates huge challenges for IT.

By James Niccolai and Lucas Mearian

AS WORKERS increasingly use personal or company-owned consumer technology on the job, IT managers face an ever-growing challenge — maintaining control of corporate data as hundreds or thousands of new devices are added to their technology stables.

The use of tablet computers and smartphones — along with social networks and free online services — in the workplace is pressuring IT executives to rethink their game.

Analysts and data center managers at IDG Enterprise's Consumerization of IT in the Enterprise (CITE) conference in San Francisco last week mostly advised companies to embrace and control consumer devices rather than fight their use in the workplace.

"If you try to block it, it will go around you," said Dion Hinchcliffe, executive vice president of strategy at Dachis Group, an Austin-based business consulting firm.

Some companies have had to make unpopular decisions to make sure sensitive corporate data doesn't leak from the new devices.

For instance, Hyatt Hotels implemented a policy of wiping data from any personal device used at work if the owner loses it or leaves the company.

Hyatt only started allowing workers to use consumer devices after discovering last year that a corporate rule prohibiting their use was ignored by some.

"We rolled out [Microsoft] ActiveSync and started seeing devices that we knew weren't ours," said Dave Malcom, chief information security officer. "So we said, 'Let's stop burying our head in the sand and start addressing the problem and start securing them.' "

Philippe Winthrop, managing director of The Enterprise Mobility Foundation, said the best way for companies to reap the benefits of consumer technologies, while still maintaining data security, is to implement policies allowing only corporate-owned devices.

"You can't fight the war of consumerization of IT, but you can pick your battles," he said. "It's not about data security. It's about risk management."

Winthrop said that companies should allow employees to choose to use any device they think can help them, as long as the device is owned and managed by the company. That way, it's easier for IT to secure the data on the device.

"They can allow the individual to download Angry Birds, but in a controlled fashion," he said.

Hinchcliffe noted that educating device-using employees on how to keep data secure is as important as developing hardened security measures.

Companies should set simple rules, such as a ban on storing data in the cloud, he suggested. "We have to get into the business of emergent change. We don't want to control it all," Hinchcliffe said.

The consumerization of IT is already showing significant benefits at some organizations.

For instance, the use of company-owned tablets by the beer sales team helped food service distributor Ben E. Keith boost sales last year, during a period of economic uncertainty, said Steve Fleming, vice president of administration and information.

Beer sales representatives get an average of 40 seconds to pitch products to store managers, he said. The tablets allow them to answer customer questions far more quickly than they once could.

Fleming said the privately-held company's sales increased by $33 million last year, adding, "I firmly believe it's due to having that extra functionality in the salesman's hands." ◆

Niccolai *is a reporter for the IDG News Service.*

> "You can't fight the war of consumerization of IT, but you can **pick your battles**."
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THE Grill

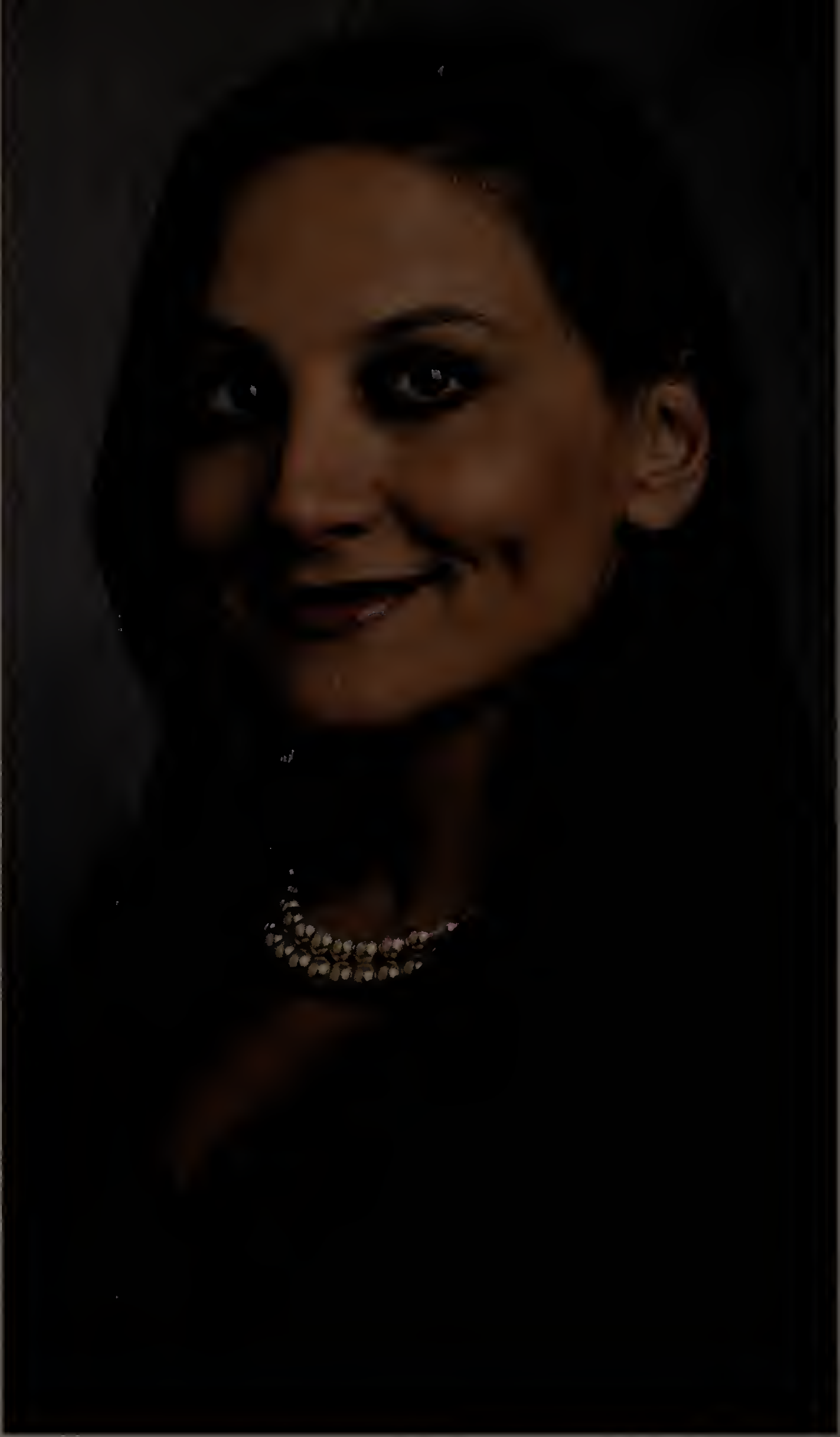
Mojgan Lefebvre

This CIO learned to take chances in her career and crystallize her agenda.

Family: Husband and two daughters, ages 9 and 11.

What's your favorite technology? One is Facebook. I just reconnected with my friend from Israel. When [my family] left Israel and went back to Iran, we were sending letters. But her last letter to me was returned to her because the relationship between the countries got cut, and we lost track of each other. But when I opened my Facebook account, I included my maiden name, and we found each other. In October, we reunited for the first time in 35 years.

What do you do in your spare time? I love to spend time with my family and friends, and I love entertaining and cooking. And I love to watch movies.

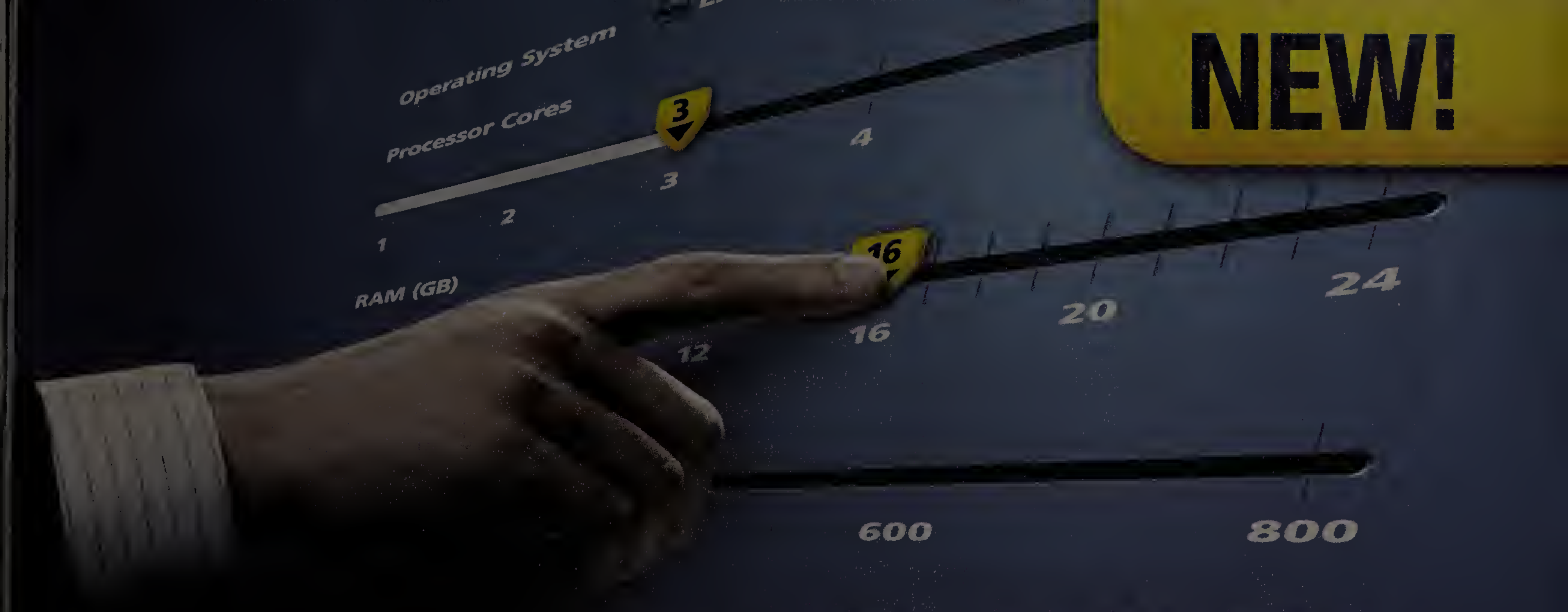


PHOTOGRAPHY BY BILL SHIELDS

MOJGAN LEFEBVRE *stepped into the senior vice president and CIO job at Liberty Mutual Commercial Markets in July 2010. It was her third stint as a CIO since 2004. She held the top IT posts at BioMerieux from 2007 to 2010 and at Teletech Holdings from 2004 to 2007. Her experience as an IT executive, coupled with the skills she has gained in business-side positions such as company founder and CEO, has given her insights into what it takes for executives to manage their careers. In fact, she recently spoke on that topic at an event sponsored by Women in Technology International. Here she shares her views on running a successful IT shop and managing one's career.*

What's the biggest mistake most CIOs make in managing their careers? One of the things that CIOs, and executives in general, don't do enough of is take risks and take on new roles and, for CIOs specifically, take the time to do something on the business side

Continued on page 14



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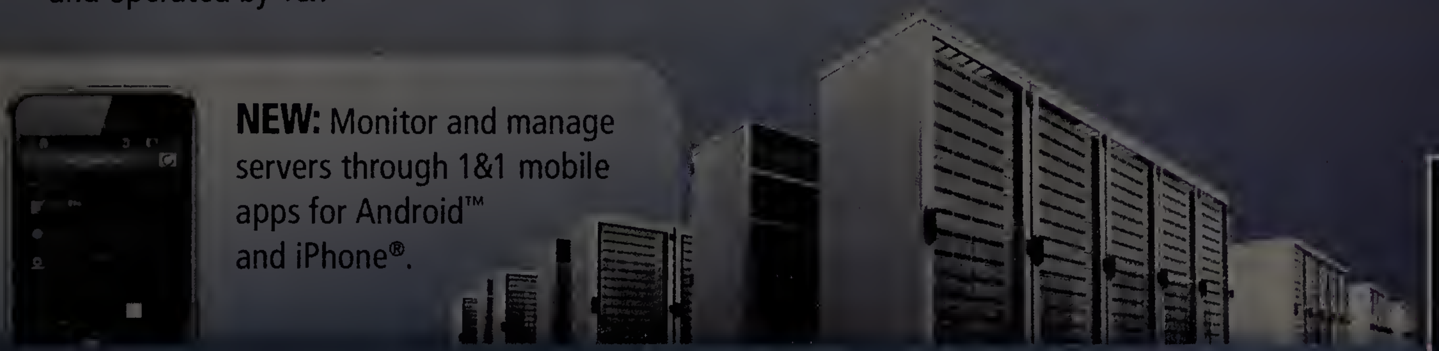

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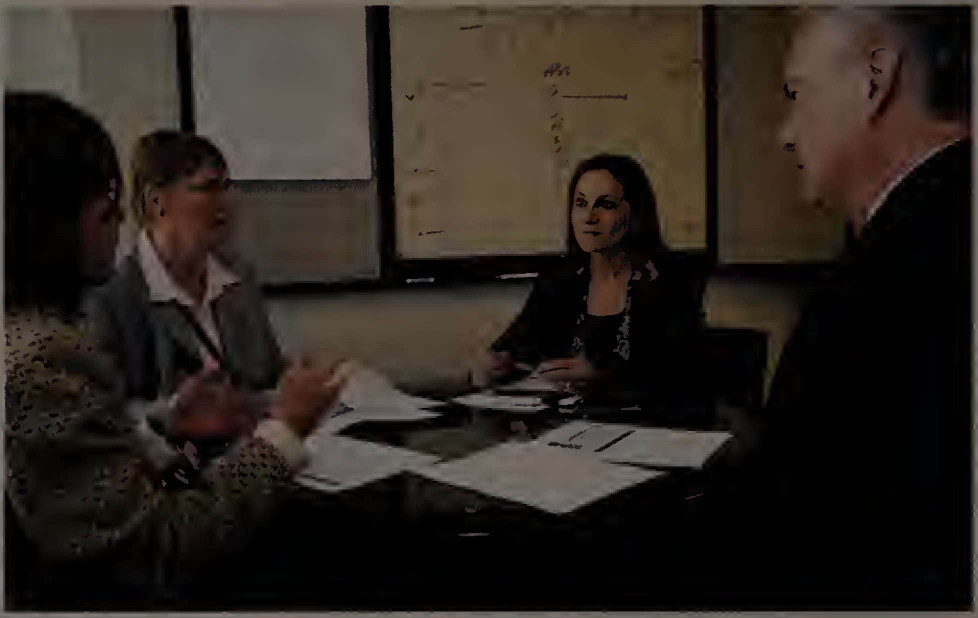


> **You need a CIO who can lay the path** where investments need to be made and then prioritize and make them happen.

Continued from page 12

before spending their careers on the IT side. Those who do [spend time on the business side] realize how valuable the experience is.

Did you spend time on the business side? Yes, absolutely. It's such an amazing experience to have to look at everything from a customer's perspective.

What do you suggest other CIOs do to better manage their careers? You can take concrete steps where you actually go out of IT and do something different for a while. I know that's risky, but without that the rewards won't be there. But if [such opportunities aren't available], then freely leverage the IT arena. You're sitting at the intersection of all the business problems and issues, so really try to learn and become part of the conversations that the executive staff is having. Try to learn and contribute and not limit yourself to just being part of the technology conversation.

And I think generally for anyone to manage their career in any organization, it's important to know who are the key people around you, who are the key constituents, who are your allies and people who might potentially stand in your way, and then be aware of those relationships and never be afraid to build the relationships you may need.

What was the biggest challenge of stepping into a new CIO position at a new company? I think in general, whenever a company hires a new CIO, there's a likelihood that there's a lot that needs to be done. There's a huge agenda. So the most important thing is to understand your customers' expectations and your managers' expectations and then prioritize.

If two years down the road you say, "I'm a good CIO because of X, Y and Z," then what are X, Y and Z? So prioritization and focus are important. Then probably in the first 60 to 90 days, somehow communicate what you're going to do. You don't want to be there for six months and have people have no idea what your agenda is.

You've held CIO positions since 2004. What have you seen as the biggest change in the CIO's job during those years? Over the past five years, the shift in technology and the consumerization of IT has made the presence of technology in everybody's life prevalent, so nothing can be done that IT doesn't have a role in or an impact on.

So it's defining the role of the CIO in this new world. There are some who would say you don't need the CIO anymore, but there's a huge school of thought that says you need a CIO now more than ever. You need a CIO who can lay the path where investments need to be made and then prioritize and make them happen.

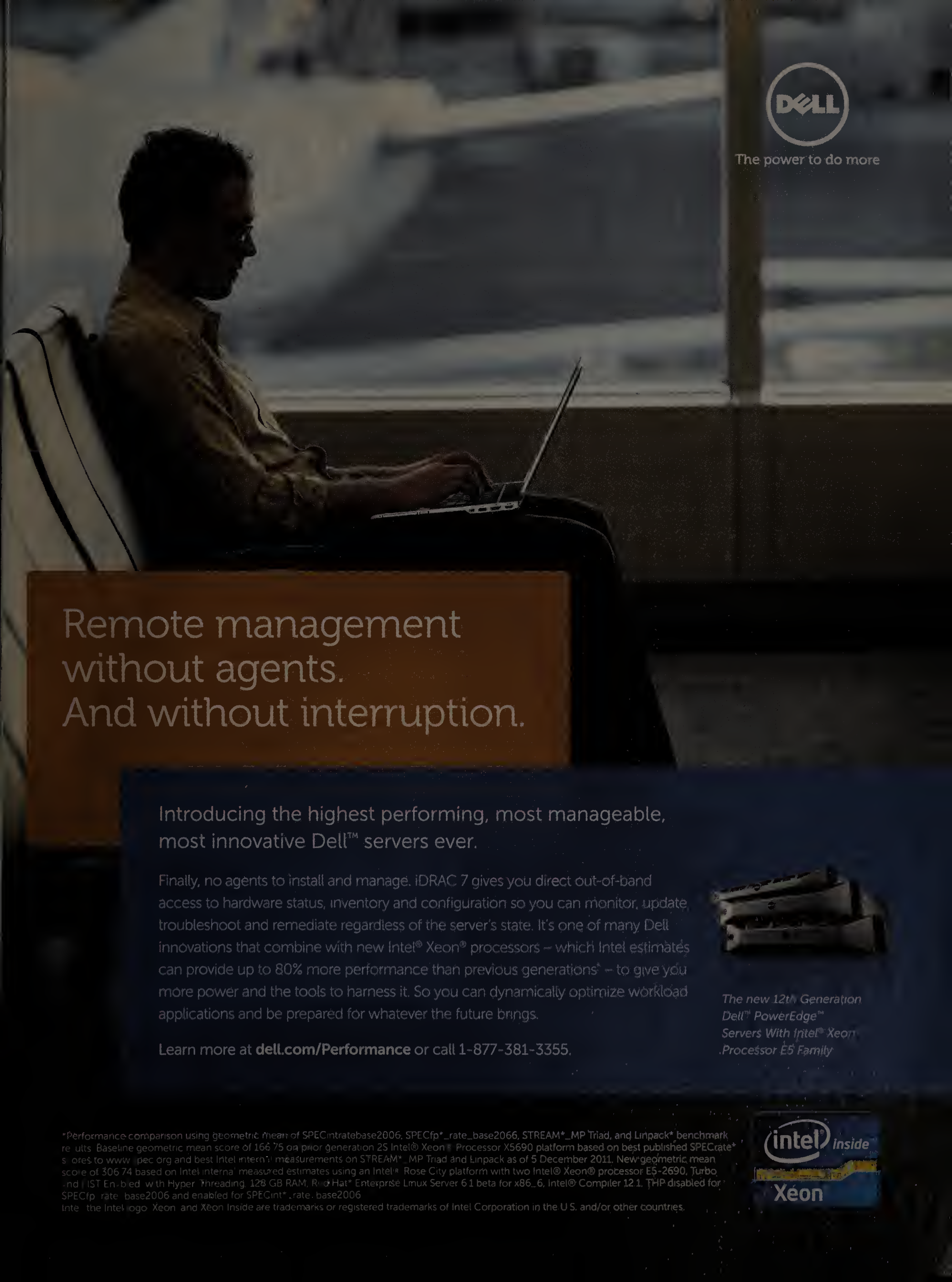
As someone who has worked with Women in Technology International (WITI), do you still see issues with getting females to enter the technology field? I think so. I'm lucky enough to have three women on my direct team — it's less than half, but it's more than I had in my previous company. There are still issues with having women in technology, and the issues start at younger levels. A lot of girls don't go into math and science, and if you don't have that foundation, it's harder to go into technology.

So first we should address that whole issue of girls going into math and science. And the other issue is that in IT, some of the roles are very time-consuming and sometimes require you to be connected 24/7. During certain years of your life, when you're having children, there's a strong temptation to say, "I can't have kids and have that type of job." Companies that provide more flexible careers, maybe allow some ability to work from home, to enable women to have their jobs and their family, will do better in keeping women.

Are enough people concerned about this issue? There are probably not enough people concerned, but I know it's one of the topics of high concern for many women executives. If there's anything we can do, we try to do it. There's not enough [concern] at government levels to change this. But every step by every individual goes a long way.

What are you doing on this? Involvement in organizations like WITI and taking the opportunity to speak whenever I can, being an alumna adviser at Harvard. And I have two daughters, and I'm trying to do my best to make sure they're as strong as they can be in math and science. Certainly I could be doing more, but hopefully it is something.

– Interview by Computerworld *contributing writer*
Mary K. Pratt *(marykpratt@verizon.net)*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OPINION

PRESTON GRALLA

Upgrades: Are Computers Just Big Smartphones?

> Microsoft has gone much further than Apple in making its OS look and work like a smartphone.

THE BETA VERSIONS of Mac OS X (code-named Mountain Lion) and Windows 8 are now being tested worldwide, and although they are quite different from one another, they share one characteristic: Both take designs and features built for smartphones and tablets and tack them onto desktops and laptops. Does that mean that Apple and Microsoft believe that your computer is really just a big smartphone? And what do these new upgrades mean for IT?

Microsoft has gone much further than Apple in making its operating system look and work like a smartphone. The Windows 8 tiled interface is taken straight from Windows Phone 7 and is clearly designed for touchscreens rather than mice and keyboards. The familiar Windows desktop is downplayed — you don't even boot directly into it — and little effort has been put into changing it.

What you boot into is the tiled interface known as Metro, which represents one of the more dramatic makeovers of the operating system. Metro was originally designed for phones, and at this point, it seems like it will be much more at home on tablets than on desktops. But its presence in Windows 8 suggests that Microsoft is intent on unifying the Windows interface across all platforms. What we're seeing, then, is a complete reversal of the early days of Windows Mobile, when Microsoft designed a phone interface to look like the desktop version of Windows.

Apple's changes in the just-released beta of Mac OS X aren't as dramatic, but they, too, are aimed at making desktops and laptops look and work more like smartphones and tablets. Several apps originally developed for iOS have been ported over to Mac OS X. But the bigger news is that Mountain Lion fully integrates with iCloud so that data and settings can now sync across all Apple devices, including iPads and iPhones.

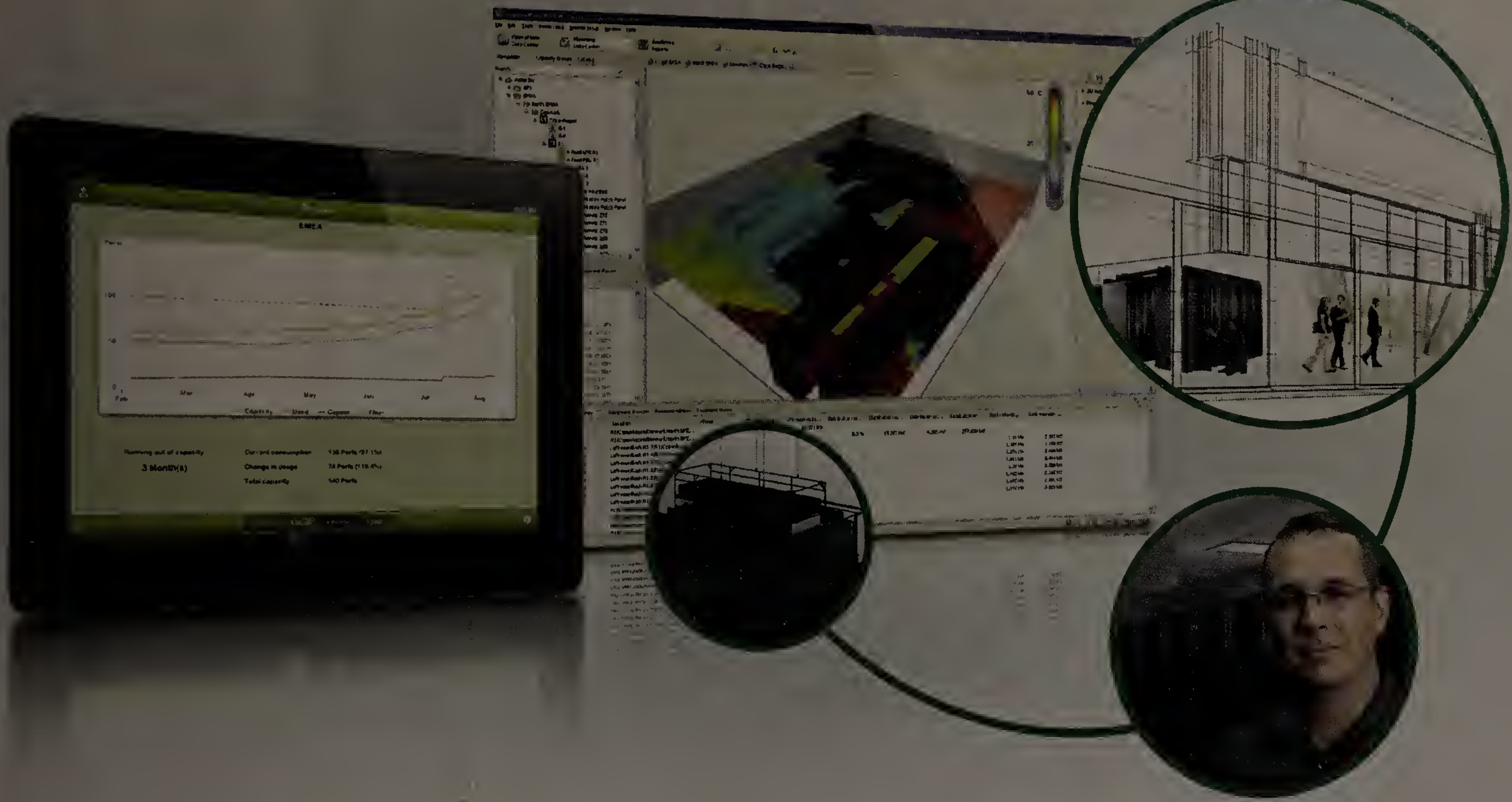
Based on initial reports, Apple appears to have done a better job than Microsoft of picking and choosing mobility-related features that it can roll into its operating system while keeping the operating system clearly aimed at desktops and laptops. The main elements of Mac OS X haven't changed so much as undergone a variety of tweaks and additions, notably iOS integration. Windows 8, on the other hand, doesn't look like a desktop or laptop operating system and hasn't been optimized to work on one.

Impact on IT

The Mac OS X upgrade won't have much of an effect on IT shops. Although Apple hardware is becoming increasingly popular in enterprises, it's still not the standard in most places, and therefore many IT shops simply won't have to deal with it. In companies that do have a significant number of iPads and Mac laptops and desktops in use, the redesign will have a slightly beneficial impact because of its integration with iCloud.

The Windows 8 overhaul represents a classic "good news and bad news" situation for IT. The bad news is that Metro will present serious headaches for IT because of support issues and because new Metro apps may not play well with existing enterprise software. The good news is that the Windows 8 kernel will be used for Windows 8 tablets, so enterprises will be able to deploy and manage tablets more easily than they can now. Eventually, the Windows 8 kernel will be used on smartphones as well. So Windows 8 will ultimately make it easier for IT to deploy desktop, laptop and mobile hardware with a single tool. ◆

Preston Gralla is a *Computerworld.com* contributing editor and the author of more than 35 books, including *How the Internet Works* (Que, 2006).



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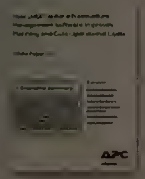

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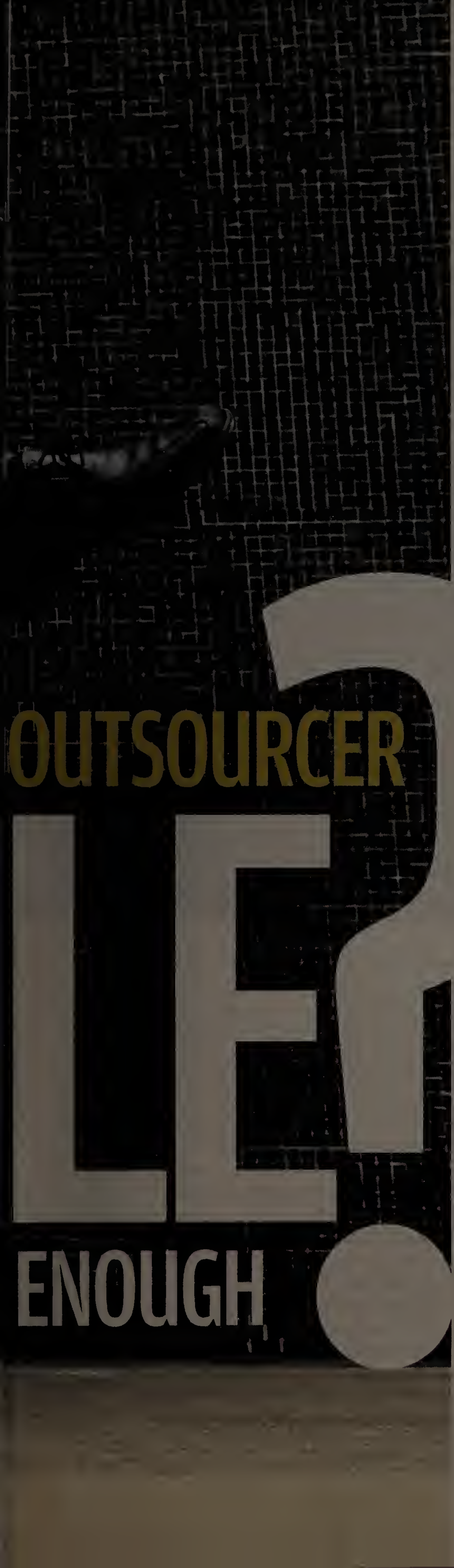

OUTSOURCER
LE?
ENOUGH

More companies are choosing agile development to create user-friendly, quickly evolving enterprise apps. **Here's how to decide if your outsourcer is up to the task.**

BY MINDA ZETLIN

ABOUT FOUR YEARS AGO, Medidata Solutions decided to switch from its traditional "waterfall" method of software development to an agile methodology. Medidata provides clinical testing solutions in a software-as-a-service model. "We made the change for all the usual reasons," says Andrew Newbigging, senior vice president of research and development. "We wanted to be more responsive to customer needs." At the same time, Medidata's IT leaders explored the possibility of outsourcing some of the company's software development. Though that might have made sense in the traditional waterfall world, they concluded that it was the wrong way to do agile.

"We do an iteration, get feedback, and iterate again," Newbigging says. "That works well for us, and we were concerned that in any sort of outsourcing approach we would lose that ability to be responsive — and end up with a product our customers wouldn't want to buy."

It's an opinion that many industry experts share. "We have seen cases where folks were successful outsourcing agile development. But they were the exception, not the rule," says Sean Kenefick, an analyst at Gartner.

He and many other experts believe that the best way to create a pure agile methodology is to keep all development work in-house. Companies that do outsource agile development will inevitably face tough tradeoffs: They'll likely have to give up some agile principles, as well as some of the cost savings typically associated with outsourcing. And managing an outsourced agile project is likely to be more difficult than managing that same project in-house.

Nonetheless, a growing number of companies will have to face the challenge of outsourcing agile development. In a survey of more than 6,000 software developers conducted by VersionOne, which makes a tool for managing agile projects, more than 80% of the respondents reported that their companies had adopted agile development.

Meanwhile, the trend of outsourcing more and more IT functions continues.

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Can We Talk?

Time zones challenge offshore agile teams.

WHEN PEOPLE on the East Coast arrive at their offices at 9 a.m., it's already 7:30 p.m. in Bangalore. That might not be a big problem in the old-fashioned world of waterfall software development, but if you're using agile, which requires constant communication among developers, testers and the business users of the software, having team members in different time zones poses a serious challenge. What can you do? Here are some tactics that have proved effective for successful outsourced agile projects:

1. **Write detailed requirements.** "When we need to exchange information about detailed requirements, the time difference is a challenge," notes René Rosendahl, senior manager in the project management office at Kelley Blue Book. "We're mitigating that by providing more detailed written information than would be needed if it weren't offshore. The goal is to minimize the questions that come back to us."

2. **Use collaboration technology.** Kelley Blue Book uses a tool called VersionOne to manage agile projects and keep the lines of communication open within its agile teams. And that's not all. "We are heavy users of instant messaging and email," Rosendahl says. "So if someone's gone home for the evening and offshore team members need information from that person, they might get it via email or IM."

3. **Ask offshore workers to match your time zone.** Many developers in other parts of the world approach agile development for U.S. companies by working hours that, to them, are odd. "Most of our team based near New Delhi are operating on Eastern time. That helps a lot," says Shane Aubel, CIO of the outsourcing company Tarika Technologies. The Indian workers are at their jobs from around 11 a.m. their time to 7 or 8 p.m., he adds.

   It helps to not keep anyone on the late shift for too long, notes Kevin Quick, North America testing lead for Capgemini. "It's a rotational thing, so our people can manage their lives well," he says. "We learned the hard way that if we leave people on the late shift for too long, we tend to lose them."

4. **Keep some team members onshore.** "My biggest recommendation is to make sure that the designers, architects and engineers are located onshore," Aubel says. "We do a lot of the architecture, design and requirements, and then the specifications we send to the team are pretty well defined. It's just a matter of coding. The challenge arises when you try to start offshoring design and architecture."

   But some industry experts are skeptical about this sort of approach for a truly agile methodology. "If you're doing waterfall development, it's OK to have a Java person who only knows J2EE," says Max Rayner, executive-in-residence at Hudson Crossing. "In agile, you want developers who think like business people. It's not enough that they can program. They have to be engaged and challenge the demands, thinking of the outcome rather than the process. So a lot of the outsourcing companies that are coder mills have a problem because they don't have talent that is able to engage with core business matters, just on how well their code is written."

5. **Buy lots of plane tickets.** Videoconferencing, instant messaging, document-sharing and remote scrum meetings all help, but in the end, nothing compares to meeting face to face. So IT leaders who've successfully managed offshore agile projects recommend frequent visits – in both directions. "You may have parts of your onshore team going offshore to meet the offshore scrum team in person and introduce them to your technology," Rosendahl advises. "And you might also plan for offshore resources to come onshore to keep the exchange going and continue building these relationships. It's not cheap, and it takes effort and time, but it's well worth it."

– MINDA ZETLIN

According to Gartner's IT Outsourcing Forecast, outsourcing expenditures worldwide grew 8% from 2008 to 2011, and will grow an additional 6.6% in the next two years. Judging from those statistics, it's clear that at least some agile development projects will be outsourced.

The Case Against Outsourcing Agile

Why is it so rare for an outsourcer to successfully deliver agile development? Consider that agile development is always challenging, even in-house, with everyone at the same location. "It requires a huge amount of discipline and cultural change, and a lot of buy-in from the group, from the lowest-level person to the highest executive," Kenefick says.

Even a company that is successfully using agile may find it hard to maintain, he adds. "It's a very delicate balance. I've seen a situation where everyone was working in a bullpen and the developers wanted their own offices. That change was enough to disrupt the agile process. Just by moving a function from one side of a room to another, you make something difficult even more difficult. If you outsource it and take it to another company, you've made it that much harder."

» Gartner's Sean Kenefick: Agile is more challenging when projects are outsourced.

To make matters worse, using an agile methodology runs counter to most outsourcers' business models. "Every outsourcing company has its own methodology for developing software, which it wants to use for all its clients," says Alex Adamopoulos, CEO of Emergn, an IT consulting firm focused on agile and lean development. "That's not necessarily a bad thing — they want to find ways to run their organization most efficiently. But it makes them less likely to adopt whatever methodology a client company is bringing."

Indeed, embracing an agile methodology is likely to make the outsourcing company's work considerably less efficient. "One of the benefits of agile is that you can take shortcuts while you develop in order to release more quickly. Then you go back and refactor the code later," Kenefick says. "But how do you do that when a third party is doing the coding? They want to get it done once, the right way. As an outside vendor, why would I want to rewrite the same code more than once if I didn't have to?"

Then there's geography. Many outsourcing arrangements involve working with programmers in parts of the world where labor is cheaper than it is in the U.S. But if moving a function across a room can disturb the agile process, moving it across an ocean is worse.

Continued on page 22

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"A fundamental aspect of agile is really quick feedback," Kenefick says. "If you've got people in different time zones, you won't have those conversations as often as you need to. I'll write some code today, but then I won't get feedback on it for 24 hours."

That's one reason why the agile methodology works so well when teams are all in the same place, he adds. "It is very hard to colocate teams, but it's the first thing I'd put on my list of effective agile practices."

If outsourcing agile development makes a challenging job even more so, is it a better strategy to keep all agile development in-house? For a growing number of companies, the answer seems to be yes. "We're seeing a trend toward companies that have outsourced in the past choosing to invest in their own people's skills and capabilities instead," Adamopoulos says. "Smart companies are figuring out that the cost savings from outsourcing aren't that significant. For instance, one insurance company we work with is bringing more of its development for key projects back in-house so as to have better employee retention and less risk. Their view — which has been that of a number of our clients here and in Europe — is that traditional outsourcers aren't helping them get products to market fast enough or well enough. The change rate is slower on the outsourcer side, so to offset that, they're building up the capabilities of their own people."

That's the decision Medidata made last year when the company decided to expand one of its software offerings and once again took a serious look at outsourcing agile development. "We decided to hire and increase the size of our internal development team instead," Newbigging says. "We feel quite strongly that we're better off having our own developers building the software, and also being responsible for maintaining it, responding quickly to any issues. They are able to understand the software because they built it in the first place, and that's harder to achieve if the original development was done elsewhere. You don't have that same depth of knowledge."

Outsource for the Right Reasons

While keeping all agile development in-house may top the wish list of many IT leaders, it's not a realistic plan for every company or every situation. With looming technology skills shortages and pressure on IT budgets, some agile software projects will have to be outsourced.

So how do you decide if it's right to outsource an agile project? Begin by asking yourself what you hope to gain from working with an outsourcer. "The ideal reason is so as to give immediate response to a business need," says Max Rayner, executive-in-residence at consulting firm Hudson Crossing. "Can you find ways to also have it lower cost? Yes — but something important enough to be done in an agile way is likely to be worthwhile, whether you're paying $1,500 a day or $1,000 a day or $750 a day. By going to some of the lowest-cost countries, you can get a very competent programmer for $25,000 a year, including benefits — but that's not necessarily going to help your project succeed."

Before joining Hudson Crossing, Rayner was CTO at TravelZoo and oversaw the creation of the travel search site Fly.com, for which he used an outsourcing company based in Lisbon, Portugal. "That was a 100% agile project using scrum," he says. (In scrum, small teams work on a specified portion of the requirements for a limited amount of time and hold daily meetings to assess progress and address any questions or problems.) "I was in California, so we had hardly any overlap in our work days, but it worked

Team Augmentation

A different approach to outsourcing agile

WHEN SCIQUEST, which provides software-as-a-service supply chain management tools, decided to switch to an agile software development model about five years ago, the company already had a well-established relationship with an outsourcer in India. "A big chunk of our work was being outsourced," says Daryl Broddle, vice president of technology. The outsourcing company was a small, entrepreneurial firm that was willing to change its practices to accommodate the new methodology.

So SciQuest began creating teams, as in a classic agile setup. "The entrepreneurial partner augments our teams," Broddle says. "The teams focus on a strategy, and the developers at the outsourcer participate in our daily standup every two or three days. We've integrated them into our process. We don't write a bunch of stuff down that we send to them."

» Daryl Broddle: SciQuest's agile outsourcer is a true partner.

SciQuest is based in North Carolina, and the two companies deal with the time difference by adjusting their work schedules, something that Broddle says is very manageable. "They come in at 9 or 10 a.m. and work till 6 or 7 p.m.," he says. "We wind up with three to five hours of overlap. And if we need to have a meeting where we have to have a long discussion, then we'll come in at 7 a.m."

To further aid collaboration, one of the outsourcer's developers is on-site full time at SciQuest. "He's one of the four people on one of our four-person teams," Broddle says. "I treat him as one of my staff, but he's also our account manager. For instance, if one of the developers in India is not working out well, he handles it."

This scenario has been working well for more than five years, Broddle notes. "They were pretty small and just starting out when we first started partnering with them," he says. "They've grown along with us, and they are now about four or five times as big as they were when we began."

Working with the outsourcer lets SciQuest meet its goal of getting new features to customers faster. "We have three major releases a year, but in between we use focus groups," Broddle says. "We show them new functionality and get their input long before we put a new feature into the production environment. With the outsourcer augmenting our teams, we can get something done and ready to implement in front of our focus groups within a two-week sprint. We're not showing them screenshots – it's real code."

– MINDA ZETLIN

brilliantly. My morning was their evening so I would get to say, 'OK, yesterday we agreed you were going to do these five things. Did you do them? How's it going?' "

There were members of Rayner's team working on the project in California as well, he adds. "At the end of the workday, each team would hand off to the other shift. That's more complex than a traditional agile arrangement where everyone is in one location, but I was willing to take responsibility for the time, cost, and feature tradeoffs," Rayner says.

That factor — having an IT leader take responsibility for the project — is a key differentiator, he adds. "A lot of IT managers make the following mistake: They're under pressure to reduce costs, so they decide to go to an outsourced company that promises to use agile methodologies. They think that not only will they get lower labor costs, they'll get the higher productivity of agile."

That kind of thinking can lead to trouble because using the agile methodology means giving up some of the cost savings traditionally associated with offshore outsourcing. Indeed, Rayner says, Fly.com's success was due in part to the fact that his company paid a higher price to work with the outsourcer's most experienced developers. "They were every bit as important in solving business problems as they were in solving coding problems," he says.

Outsourcing agile development may not save that much time and effort either. "You have to be willing to work as hard with an outsourced partner as you would with your own people," says Rayner. "And your super users need to be involved to help determine features."

The worst outsourced agile disasters occur when the client company thinks it can hand off responsibility to the outsourcer. "At one company I worked with, speed of delivery was worse than before the agile outsourcing," Rayner recalls. "At the root of the problem was this attitude that, 'now that we have an outsourcing contract, they have to be the ones to do it. They have to be agile and fast, and we don't have to be in touch every day.' "

» Andrew Newbigging says Medidata chose not to outsource its agile development work.

He notes that there's another reason — usually unspoken — why IT leaders sometimes choose to outsource: So they can deflect responsibility and gain a scapegoat in case things go wrong. "You can't go to the business sponsor and say, 'I told them to do what you asked, and it doesn't work. We're going to fire this outsourcer and get a new one,' " Rayner says. "That's often what happens when a project fails."

This kind of thinking can kill an agile project before it even gets started, he says. "The very spirit of agile is to have mutual trust and respect, and a flexible relationship where you know at each decision point exactly what cost, time and feature tradeoffs you're making. That's hair-raising to some engineering leaders because they can no longer hide behind the contract."

Is 'Partly Agile' Enough?

If you do decide to outsource an agile project, one question to consider early on is just how much of the traditional agile methodology you want to adhere to. Because working with an outsourcer will almost certainly prevent you from using a completely agile framework.

"In most cases, the outsourcing company would be using scrum as an agile practice," Adamopoulos says. "While this is fine, more and more companies are figuring out that they can use agile across a whole set of areas in the software life cycle. They might use agile in the early idea-management phase and the vetting of an idea well before requirements are even needed. It might also mean they use agile practices to develop comprehensive business cases and metrics. All of that is usually not a discipline an outsourcing company brings."

"In principle, the agile methodology says that you have a cross-functional team that is colocated. You can make decisions on the spot and you can look at things together," adds René Rosendahl, senior manager in the project management office at Kelley Blue Book in Irvine, Calif. The company uses an outsourcer in Beijing to provide agile development for its website KBB.com and other products. "With offshoring, you are forced to separate the product owner from the rest of the team, and you need to write things down and expect delays in decision-making. Does that mean you have to compromise some of these agile principles? I think the answer is yes. You cannot apply the principles in the same way you can with in-house teams, but you hold on to them as much as possible."

Picking the Right Agile Outsourcer

Choosing the right outsourcing company may be the biggest part of the challenge. "Pick a partner that's really going to be your partner, not someone who'll just deliver that [statement of work] to you," advises Daryl Broddle, vice president of technology for SciQuest, an online procurement technology provider. SciQuest has used an outsourcer to do agile development for years. "I have a personal relationship with the CEO of that company," Broddle says. "He visits me once or twice a year when he's passing through. Neither company would be where it is without the other." (See "Team Augmentation," page 22.)

Perhaps most important is a willingness to face up to the profound changes that a move to agile requires. "There was one large logistics company in Europe with an outsourcing agreement with a very well-established systems integrator," Adamopoulos recalls. "The systems integrator's model wasn't helping the logistics company. It wasn't getting new features fast enough and was losing market share. Every time IT executives had a conversation with the outsourcer about agile, the outsourcer would make some minor change, but then things would go back to status quo."

The logistics company hired Emergn to train both its own team members and its contacts at the outsourcer in using the agile methodology. Once they were trained to employ agile properly, they were able to shorten the average release time for a new feature from 300 days to 47 days, Adamopoulos says. "The logistics company reclaimed about 21 million euros in revenue that year because they were able to move feature releases up 10 months. In the past year, they've also regained a fair amount of the market share they'd lost."

He was especially impressed with the outsourcer's ability to completely change the way its developers worked. "That was a huge win, and it's gotten companywide recognition at the outsourcer," he says. "They're beginning to use the agile methodology within their own organization as well. They recognized it was something they needed in order to remain competitive."

Large or small, an outsourcer willing to make changes like these is probably a good bet if you are facing the challenging prospect of outsourcing agile development. ◆

Zetlin *is co-author of* The Geek Gap: Why Business and Technology Professionals Don't Understand Each Other and Why They Need Each Other to Survive.

CASE STUDY

Integration *in the* Cloud

Mohawk Fine Papers saves millions by using the cloud as a central integration point for all its B2B transactions. **BY ROBERT L. MITCHELL**

JUST TWO WEEKS after Mohawk Fine Papers made the decision to sell its products on Amazon.com, things were looking good for the company: Integration work was complete, connections to its ERP system had lit up and sales were rolling in. "Amazon generated tens of thousands of dollars in revenue immediately," says Paul Stamas, vice president of IT at the $300 million, 725-employee manufacturer of premium papers.

Best of all, the data integration project, which cost less than $1,000 to get off the ground, required no in-house investment in integration tools or staff resources.

Instead, cloud-services provider Liaison Technologies performed the integration work and then set up — and currently manages — the connections through its cloud-based service.

Two years ago, a project like this would have been handled as just another point-to-point EDI integration. But the Amazon deal and the 100-plus other business-to-business con-

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nections that Mohawk has set up through Liaison over the past 18 months represent the culmination of Stamas' vision to create what he calls a "service-oriented architecture in the cloud."

The model has allowed Mohawk to quickly and inexpensively set up new business relationships without worrying about the technical details, thereby producing new revenue opportunities and millions of dollars in cost savings.

"SOA was the answer because it works based on the concept of loosely coupled services, and geography doesn't matter," Stamas says. He briefly considered building an SOA in house, but "my head was spinning at the costs and complexity," he says.

So, early in 2010, he began working with Liaison on his idea. Since then, the services that Liaison provides have moved beyond straightforward provisioning and management of B2B data mapping and EDI connections. Liaison now handles all connections, whether they're between on-premises applications, from on-site systems to the cloud or cloud-to-cloud.

Recent projects include a process by which another cloud service provider, StrikeIron, provides up-to-date currency exchange rates to Mohawk's on-premises ERP system at the time of invoice for international orders. Another inserts freight costs into each customer order on Mohawk's website by way of cloud-based transportation logistics service broker Mercurygate. And a Web service created by Liaison checks Mohawk's websites and its ERP system to ensure that items are in stock and relays availability information to customers before they place their orders.

"We have over 30,000 of these checks a month and they happen in real time, synchronously, in two to three seconds," Stamas says.

Liaison serves as the intermediary for every type of transaction, performing the necessary integration and data management work with Mohawk's customers, suppliers and other business partners. The vendor also presents the connections as services for Mohawk to use as it wants, and offers a business activity-monitoring tool that keeps tabs on service levels from end to end.

» A cloud-based SOA was the answer to B2B integration hassles at Mohawk Fine Papers, says VP of IT Paul Stamas.

"With Liaison, all types of data integration flow through the same service-oriented infrastructure, all [data] payloads are defined as services, all interactions are managed via Web services, and all integrations use a publish-or-subscribe model" in which services are either provided or consumed, Stamas explains. "They have the tools and platforms, the enterprise service bus, messaging bus and service registry — all of the components of a service-oriented infrastructure. It's a foundation on which we build our own unique integrations."

The Rise of the Cloud Broker

Liaison is on the leading edge of an industrywide trend in which traditional providers of managed B2B services are becoming what Gartner analyst Benoit Lheureux calls a cloud services brokers, or CSBs. In addition to offering data integration and customization services, CSBs provide an aggregation point for all types of business partner interactions.

The differentiator for Liaison is that it has the in-house expertise necessary to perform integrations quickly, and it can draw upon thousands of integrations it has already built, Lheureux says. Competing vendors are starting to move in that direction as well.

Gartner estimates that by outsourcing to a CSB, small and midsize businesses can save 20% to 30% over what it would cost to do the integration work internally. But there's more to it than saving money, says Lheureux, explaining that such spending is now an operational expense rather than a capital expense.

This setup could work for large companies, too. "If you're good at B2B and have the economies of scale, it's not about savings. It's about what are your required internal core competencies?" he says.

Since the economic collapse in 2008, many IT organizations in large businesses have been asked to scale up their B2B efforts but lack the capital or head count to do it. "A lot of them don't even know that they have an option to outsource," Lheureux says.

Mohawk's SOA Model

B2B integration traditionally has used a messaging approach to synchronize data, but Mohawk uses a services-based model. Integration workloads are managed by two Web services: One at Mohawk and one at Liaison.

Because Mohawk's IT organization has been abstracted away from the technical aspects of creating and maintaining all the different types of connections, Stamas says his group can focus on working with the business to develop new business models and connections with new business partners.

Tony Hunter's job is to pursue those business models. As Mohawk's IT manager and business process architect, he helps to identify opportunities for the business and presents Liaison with the specifications. Right now, for example, he's working on connecting Mohawk's e-commerce website to a cloud-based service that provides real-time information on freight costs. Mohawk currently offers UPS and FedEx options on its website, but those aren't the best-priced services for some customers. For instance, "less than truckload" (LTL) freight tends to be less expensive than UPS or FedEx for orders over 150 lbs.

"We are losing order opportunities because of [not offering] a freight cost," says Steve Giangiordano, Mohawk's manager of accounting services. So Hunter created a specification for a Web service that pulls LTL freight charges from Mercurygate's cloud-based freight brokerage service and presents the data in the customer's order on Mohawk's website. "They hit a function key and they know right away what the LTL rate is. It's amazing," Hunter says. "Once we have that in place, the problem will go away."

Mercurygate is a CSB like Liaison, but it provides freight data in the cloud, and on demand, rather than integration services.

Using a CSB has also improved security, Stamas says, because everything flows through a single point by way of a VPN connection. "Inside the cloud, they have all of the data security precautions you'd expect from a PCI standards-compliant data center," he says, adding that Liaison supports the AS2 communications standard, as required by Mohawk's bank. "Going through a single point gives you an extraordinary benefit in securing transactions. The alternative is anarchy — people doing this through Web browsers, coming in through Port 80 and poking holes in your firewalls."

But Is It a Cloud?

IS A CLOUD SERVICE BROKER really a cloud-based service provider? A cloud's architecture is optimized to respond quickly to sudden, large changes in workload demands.

A cloud typically consists of a highly standardized distributed computing architecture, uses virtualization to create an elastic infrastructure that can automatically provision and deprovision resources in response to changes in workload demands, and includes usage-based metering for chargeback or pay-as-you-go billing.

In the case of Liaison, the bulk of its revenue comes from people-intensive integration and data management services, which it lumps into two groups: professional services for initial integrations, and managed services for ongoing support. Only the subscription piece, which maintains all of the connections for Mohawk and provides a tool for monitoring those, leverages the benefits of a cloud architecture.

What a CSB does is not elastic, "but the reality is that not all workloads and cloud deployments require it," says Gartner analyst Benoit Lheureux. A strong increase in transaction volume for a CSB is more likely to be in the range of 10% a year overall, he says, and CSBs can scale to meet that demand.

The bigger challenge lies in scaling up the staff. "Liaison's biggest problem is hiring the right skills to add to the fulfillment group for things like mapping, EDI, XML and RosettaNet," says Lheureux.

From Mohawk's standpoint, to focus on the technology is to miss the point. Stamas doesn't care about technical details such as virtualization, economies of computing, elasticity of demand or pay-for-use models. Those are Liaison's problems. Mohawk pays Liaison a flat annual fee plus an hourly rate to set up each integration, most of which come in around $1,000 or less.

"It's not about technology," Stamas says. "It's about building business processes in the cloud. That's what we're focusing on."

– ROBERT L. MITCHELL

The benefits of hosting a service-oriented architecture in the cloud don't come without risks, and Stamas does have two concerns. One is vendor lock-in. "If Liaison drops out of site or becomes too big, what happens to our intellectual property and the integrations we count on? It's a real concern," he says.

Another is whether the cloud service provider can keep up service levels as Mohawk's transaction volumes and customer base grow. While Mohawk has service-level agreements, he says, "the technical details of their underlying infrastructure are hidden from me."

Can Liaison scale effectively? "If we're twice as big in a year, can they handle the volume? I don't know," he admits.

Liaison CTO Bruce Chen says his company has 50% more capacity on hand than its customers need and has a distributed, service-based architecture that scales rapidly. But Gartner's Lheureux says the technology that keeps data flowing is just one part of the business. Growing the professional services and managed services that make up the bulk of the company's revenue means scaling up people, methodology and expertise. "The cost is not in the mapping tools or processors in the cloud. It's in the people," Lheureux says.

As a hedge, Mohawk retains a copy of all of its translations and mappings. The information is managed using Liaison's Contivo technology, a tool designed for high-end mapping and best practices.

The intellectual property that Mohawk receives from Liaison is better than what it might receive from other service providers because Contivo makes it easy to redeploy or repurpose data maps in different technology infrastructures, Lheureux says. Nonetheless, porting to a new platform would be painful. "You can't just pick it up and drop it on another platform," he says.

But for Mohawk, the benefits outweigh those risks. The low cost per integration and the rapid turnaround have given the company the agility to create new business relationships and build business processes on a trial basis. Mohawk can do all this without worrying about the investment of time, money and other resources required to do the integration work.

And because its costs are lower, Mohawk can tackle smaller projects that it wouldn't have considered before. Stamas points to the StrikeIron integration as an example. "It is a small little Web service," he says, noting that in the future there may be hundreds — or thousands — of such initiatives.

End of Big IT Architectures?

Stamas sees this as the beginning of the end for monolithic enterprise applications. "They're beginning to break apart into pieces. Rather than monolithic systems like SAP and Oracle, an ecosystem of cloud services will be interoperating with other workflows and processes that can be anywhere," he says.

For example, Stamas explains, "our ERP is the system of record for financials, but much of the functionality resides outside the system." Orders entered via websites and CRM, expense management and HR systems are handled in the cloud, and advanced capabilities such as planning, scheduling, transportation, supply chain, asset management, manufacturing execution and warehouse management are performed outside the ERP software. Today, 60% of Mohawk's IT portfolio resides outside the ERP system, up from 10% five years ago. "I see this rate accelerating," says Stamas.

In such a setup, "your ERP system may call Web services at StrikeIron for a currency conversion, and UPS or FedEx for a freight rate," he says. "Then it may check inventory for an item at a customer or supplier" or ping other sites to perform credit checks, calculate sales tax, approve credit card payments and more.

As the financial bar has been lowered and turnaround times shortened for executing on such integrations, the number of projects at Mohawk has increased.

"We can bring in a third-party manufacturer or logistics provider at the drop of a hat. That's what's fueling revenue generation," Stamas says. "If it costs us $1,000 to try something, why not try it? If it doesn't work, we just throw it away." ◆

> **If it costs us $1,000 to try something, why not try it? If it doesn't work, we just throw it away.**
>
> **PAUL STAMAS,** VICE PRESIDENT OF IT, MOHAWK FINE PAPERS

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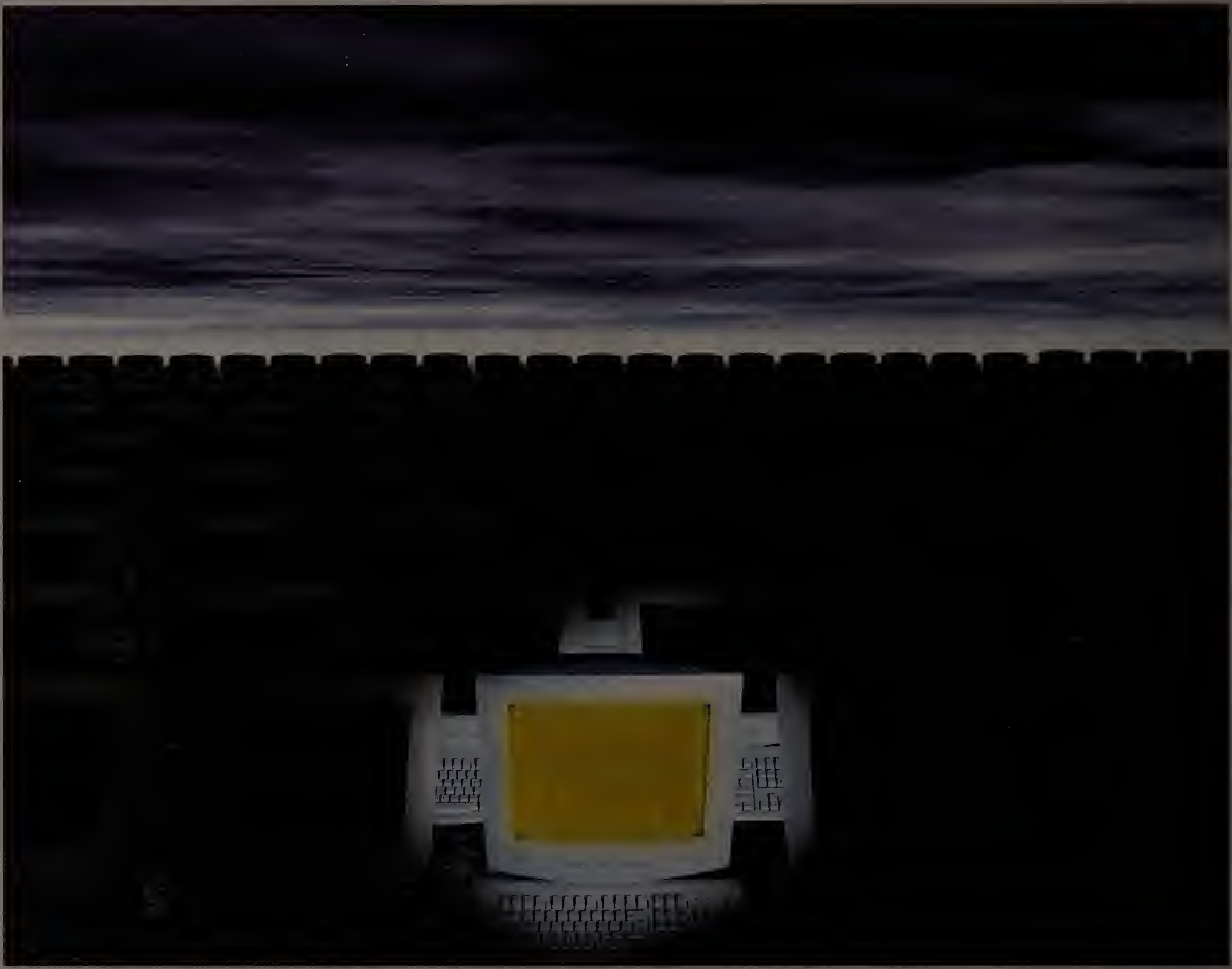

STANDARDIZING THE Desktop

Creating a 'gold standard' desktop version to push out to all employees can mean lower costs, tighter security and smoother operations. **BY JOHN BRANDON**

THE IT DEPARTMENT is often at the forefront of an organization's technology innovation — but not always. When it comes to the concept of a standard desktop — every employee's core install consisting of an operating system, applications, hardware drivers and a security suite — IT has moved at a snail's pace.

Charles King, an analyst at Pund-IT, says companies have tended to live with older software because it works well enough for their needs and because they don't want to incur the expense of upgrading to the latest releases in this era of "making do with less."

Then there are political issues. Key users who want to do their own thing might resist change, and IT may not force the issue in order to avoid running afoul of influential employees in these budget-challenged times.

But now, it seems, the snail is moving a bit faster. The use of standard desktops is becoming a best practice. In a 2010 Gartner survey of 300 IT professionals at large companies, 50% of the respondents said they will be locking down more corporate computers.

Continued on page 30

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One driving force behind the push to standardize is concern about security. IT can make a strong case that rogue applications can bring down the network, or that old software has vulnerabilities that hackers pounce on.

Another factor is the advent of virtualization, which makes it easier to standardize. More companies are using virtualization tools to create a "gold standard" — one desktop version that gets pushed to all end users.

IT managers who are locking down desktops say the strategy can lead to lower costs and smoother operations. King makes a point about the "overall fitness" of how organizations deal with software and handle operational budgets. A standard desktop forces IT to think about deployment strategies and, if handled correctly, ultimately reduces the number of approved desktops to just one or two.

Yet, some companies wrestle with the notion of standardization because they want to give employees some flexibility in the way they do their jobs, says King. There are ways to allow some flexibility with standardized desktops, including allowing employees to select tools from a pre-approved applications library, or allowing employees to request new tools from IT.

Still, no matter what you do, some end users will insist on bending the rules, or breaking them outright, by downloading their own software.

In that case, King suggests, "if the app is fairly benign, simply note that the download is unapproved, explain why and have the worker scrub it from the system," he says. "In addition, creating a review mechanism for employees to submit applications for consideration/approval can be a good way for organizations to learn about new technologies and to reward workers for their initiative."

> **Less than 1% of our IT staff have admin rights.**
>
> **ERIC JOHNSON,** INFRASTRUCTURE MANAGER, ST. LUKE'S HEALTH SYSTEM

Here's how three IT organizations are locking down desktops while providing some flexibility for employees.

St. Luke's Health System: Standards Plus Flexibility

Consistency across a large organization can be difficult. With 10 locations throughout Idaho, St. Luke's Health System has been extremely careful about its standard desktop. For infrastructure manager Eric Johnson, one important goal was to give doctors and other staffers flexibility around which hardware they can use — allowing them to choose from a list of approved devices — and where they may work within the hospital.

"In moving from Novell to Microsoft for our back end, we had a blank slate," says Johnson. The organization decided to move from systems-based downloads for applications to user-based downloads. In other words, end users can choose from a library of pre-approved software that they download themselves.

This has led to significant time savings, he says, because IT staffers have been freed up to focus on managing the library rather than about doing "one-off" application installs. He says the most significant challenge has to do with apps that are not yet in the repository, but that a department might need; the IT staff has to deal with this challenge on a case-by-case basis.

St. Luke's uses application virtualization software from Beyond Trust called PowerBroker Desktops. The rules-based engine can remove administrative rights from the user's desktop so that the person cannot install applications, and it watches for errant installs that did not complete correctly. A dashboard matches the look and feel of other Microsoft data center tools.

Johnson says his team uses PowerBroker to manage about 8,000 desktops in 90 buildings. He says St. Luke's has settled on Windows XP SP3, Office 2007, Adobe Flash, Microsoft Silverlight, the Citrix client and Microsoft Live Meeting as the core of its standard desktop.

A new employee is added to multiple groups as appropriate — say, advertising, marketing and general business. For each group, the employee can then download multiple applications from the approved list, obtain file permissions to gain access to network servers for those applications and configure some options locally, such as IE toolbars and Outlook menus.

One other challenge at St. Luke's, and for most companies dealing with a standard desktop, has to do with versioning. The facilities use a core image for their base OS and apps, and tend to stick with one version for long periods of time. Yet, Johnson says the organization manages about 22 different versions of Java through application virtualization — and this argues against including Java in a standard desktop.

By virtualizing, St. Luke's IT staffers can root out incompatibilities between applications that use Java. For example, they can determine that the standard desktop for accounting always needs a specific Java plug-in. Yet, they keep the core the same and deliver Java versions as needed, outside of the standard desktop.

Interestingly, one of the lessons Johnson has learned is to avoid tweaking the standard desktop — even for IT staffers. "Less than 1% of our IT staff have admin rights," says Johnson. "But we do give people room to roam. We don't say 'You can't use that application.' We're happy to deliver it, as long as we can deliver it virtually," to any employee, he says.

St. Luke's is a bit unusual in how it locks down administrative rights, even for IT staff. Ed Boyle, a

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Discussion Underway

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consultant with SecurityCurve, says the tactic makes the enterprise more secure. In the long term, there are "saved dollars in overall fewer security issues."

Travelport: Taming the Rogue Employee

Based in Langley, England, Travelport is a 3,500-person company with offices in more than 160 countries that provides transaction processing for the travel industry, including many major airlines. For its standard desktop, the company has taken a fairly aggressive stance about administrative rights and whether an employee can install his own apps.

The company uses Altiris, now owned by Symantec, to manage the standard desktop. Senior architect Rob Moore explains that as soon as a new employee turns on his work computer, the core OS image is updated with a few standard applications such as Microsoft Office 2010, Adobe Flash and Adobe Visual Communicator.

Requesting software outside of the norm is a fairly easy process and involves a call to the help desk to gain access to a software repository, which contains hundreds of applications; Moore declined to give an exact number. The company chooses software that will not interfere with the core enterprise applications, and it upgrades to the latest versions only if Moore's team knows that the back-end processing required for core applications has not changed much. The 25 to 30 people on the help desk are well acquainted with the approved applications.

> **We can't use an OS or a browser that cripples the business unit just to be current.**
>
> **DAN LUTTER,** DIRECTOR OF FIELD TECHNOLOGY SERVICES, ADVOCATE HEALTH CARE

However, because the company's workforce is highly distributed throughout many countries, Moore says Travelport has locked down workstations more firmly than most companies do. Users can request a unique application like Google Chrome, but it won't become part of the core offering. In fact, he says, since streamlining the standard desktop, rogue installs have been extremely rare. To add software, an industrious end user would have to rebuild his computer from scratch.

Here's one lesson Moore has learned: Maintain a core standard desktop that is hardware-independent, even as you develop standard images that are department-specific. There may be some variance, but most of the efficiency in the organization comes from having the fewest possible deviations.

Advocate Health Care: A Large Enterprise

For smaller companies, standard desktops are easier to develop and the processes are often easier to manage. But for larger companies, every change to the standard image and core applications is compounded quickly.

That's why it's no surprise that, of all the companies interviewed for this story, Chicago-based Advocate Health Care is using some of the oldest software in its standard desktop. The 30,000-employee operation, which serves central Illinois, still uses Windows XP SP2 and Internet Explorer 7 in its standard image, mostly because IE8 would cause problems with a core set of proprietary business applications used in the branch offices.

"It's a tricky process because we want to stay current and near the curve, but we can't use an OS or a browser that cripples the business unit just to be current," says Dan Lutter, the director of field technology services at Advocate. The timing might not be right for the Advocate support staffers to deal with new applications because they are still rooting out problems with existing installs, and the new version may not be fully tested for security vulnerabilities.

Lutter explains a recent scenario where users started requesting that IT make Mozilla Firefox available as part of the standard desktop. Ultimately, he decided against it. The company never actually tested Firefox because the timing was not right to deal with incompatibilities.

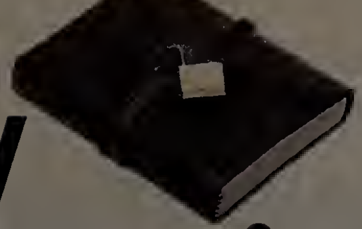
"When key business apps will not work properly, there is a loss of productivity, more frequent calls into the help desk so that support services staff have to get involved and remove the app, which confuses the customer. We don't want to have apps on our standard desktop that we manage that cause our customers to have a nonsatisfactory business experience," he says.

Advocate uses the LANDesk Management Suite for managing the standard desktop and the software repository. Lutter says one benefit of using this tool is that his team receives alerts when someone attempts to install a rogue application. He says Advocate has spent the last seven years fine-tuning the standard desktop process, and one recent lesson they've learned is to minimize the core standard. Today, they have one core for all laptops, another for desktops and a third for tablets.

"The effort required in planning, testing and migrating [an operating system and apps] is all compounded when you are talking about a very large environment, so it's not unusual at all to find much older systems used in large firms when IT staff time is at a premium," says Boyle.

In the end, whether using a standard desktop helps save valuable IT time and effort, roots out rogue installs or improves overall security, every company has to develop its own standards to meet employee requirements. As SecurityCurve's Boyle notes, in the age of the cloud and mobile devices, a standard desktop is more important than ever, especially if the goal is better IT efficiency. ◆

Brandon *is a former IT manager at a Fortune 100 company who now writes about technology. He's written more than 2,500 articles in the past 10 years. Follow him on Twitter (@jmbrandonbb).*



Security Manager's Journal

MATHIAS THURMAN

Plugging a SaaS Access Hole

We have a lot of sensitive data on Salesforce.com servers, and until now, you could access it from any device.

THE ACCESS POLICE have struck again.

That would be me, of course. I am forever seeking to control accessibility to the company's sensitive data. Naturally, when I tighten things up, some people get unhappy. Our salespeople, among others, always want access to be as easy as possible, and they want to be able to get to the data they need anywhere and from any device. For me, though, that sort of ease of access just sounds like a disaster waiting to happen.

My latest candidate for more restrictive access is our Salesforce.com deployment. We've been using this software-as-a-service customer relationship management and sales application for more than six months with pretty wide-open accessibility.

the discussions about security! **computerworld.com/blogs/security**

I have a policy regulating remote access to our internal infrastructure or sensitive data. It requires encryption (i.e., VPN) and two-factor authentication (i.e., RSA SecurID tokens). The problem with SaaS applications like Salesforce is that their use does not really involve our internal infrastructure, but it does involve our sensitive data, though it doesn't reside in our data center. After discussing things with our legal counsel, we decided that the policy should more clearly define sensitive data to include source code and financial, human resources, healthcare, customer and sales data. Salesforce contains quite a bit of this sort of information, especially customer data, sales data and sales forecasting reports. As a publicly traded company, we can't risk unauthorized access to such data, which could be used to make illegal stock trades based on insider information.

With this tighter policy in hand, I decided to take advantage of a Salesforce configuration option that allows companies to restrict access by IP address. That would essentially force all users to be connected to one of the following: a port in one of our offices, a corporate wireless access point or the network via VPN.

Cue grumbling from the sales department. They were used to logging in to Salesforce from anywhere on any device. Of course, that convenience is exactly the risk we are concerned about, since we can't vouch for the integrity of "anywhere" or "any device." Some employees have even accessed corporate SaaS applications from Internet cafes and hotel-lobby kiosks. Such "unknown" devices are often infected with malware, and when connected to our network, they have compromised the login credentials of our employees. OK, said sales, no more public machines, but at least grant us the convenience of accessing Salesforce from our iPads.

"We can't vouch for the integrity of 'anywhere' or 'any device.'

Trouble Ticket

- » The sales team is using Salesforce to access sensitive data from any device, anywhere.
- » Rein in accessibility by requiring VPN connectivity for SaaS apps.

That we did, by deploying the Cisco AnyConnect VPN client and RSA SecureID token for the iPad. We had been planning to deploy these applications for the iPad later in the year anyway, in conjunction with our mobile device management rollout.

A Lot of Work

Restricting Salesforce by IP address is a big job. We had to obtain all the IP addresses that Salesforce uses, as well as those of third parties. Then we had to modify our firewalls to allow access to each of those destinations. We also had to modify our VPN client profiles to recognize when a connected VPN user is accessing Salesforce. Finally, we had to let Salesforce know all of our company's IP address ranges. Gathering this data took time, and more time will be needed for monitoring, so that when a change occurs — the addition of a new office, for example — we can modify the configuration.

This latest change hasn't been pain-free, but the grumbling has subsided. The sales team seems to understand our reasoning and agrees that, given recent security events in the news, this change makes sense. ◆

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

OPINION

BART PERKINS

Good Service Offers ROI

Savvy organizations value service centers as revenue generators.

FOR MANY ORGANIZATIONS, service centers are necessary evils that eat budget dollars while adding little value. Because they are viewed as overhead, many service centers (a.k.a. call centers, help desks, etc.) are outsourced to reduce costs. But that may not guarantee that you'll save money, and worse, it can alienate customers by presenting as your public face service-center staffers who may have insufficient product knowledge, language capabilities or civility.

Savvy organizations value service centers as revenue generators. That doesn't just mean that they have staffers take orders in addition to answering questions. It means that they also expect staffers to be strong brand advocates who have personal experience with the products. These organizations treat their service centers as primary customer contact points. Their operations align with the assertion in the book *Marketing Metrics*, by Paul Farris et al, that "customer satisfaction provides a leading indicator of consumer purchase intentions and loyalty." Thus, every customer interaction becomes an opportunity to improve customer perceptions and relationships.

Skullcandy, L.L. Bean and a few other organizations have taken this philosophy to heart. L.L. Bean's Carolyn Beem describes the retailer's service center as "an integral part of the business and the brand. It is a revenue generator and the face of the brand."

L.L. Bean and Skullcandy recruit service-center staffers creatively. L.L. Bean sends recruitment emails to customers. Skullcandy announces jobs on Facebook and Twitter. Both methods generate numerous applications. Hiring choices are based more on customer-service orientation than product knowledge: Candidates must show an ability to handle difficult customer interactions, such as rude refund requests, unreasonable product replacement demands and convoluted product questions, while remaining calm and respectful.

Skullcandy augments its small, in-house service-center team with "brand experts," who are customers hired part time to handle chat lines. Brand experts are paid a competitive wage, but most find recognition to be more important. Successful answers to customer queries earn the experts points that can be redeemed for new or limited-edition products. A leader board displays point status, garnering the best experts peer (and management) recognition. Passionate experts often research thorny issues so that they can send follow-up emails with additional information or improved solutions.

Like most service centers, Skullcandy's and L.L. Bean's operations measure "talk time," but rather than encourage staffers to end conversations as quickly as possible, they view service-center calls as opportunities to educate their customers and sell additional products. Neither company uses scripted responses. And whereas it's common in many service centers for staffers to handle seven callers at once, Skullcandy's brand experts chat with two or three online customers simultaneously, and L.L. Bean's staffers interact with just one each.

Matching the customer service excellence found at L.L. Bean, Skullcandy and some other companies requires changing the service desk's mission, processes, metrics and rewards. That's not easy, or inexpensive. But the resulting increases in customer satisfaction, loyalty and support are well worth it. Stronger customer focus can also have a significant positive impact on both internal and external perceptions of IT — and that's invaluable.

IT shops can benefit from adopting, adapting or morphing creative approaches into their service centers. Challenge your staffers to think of other innovations, tailored to the needs of your customers, your products and your IT organization's success. ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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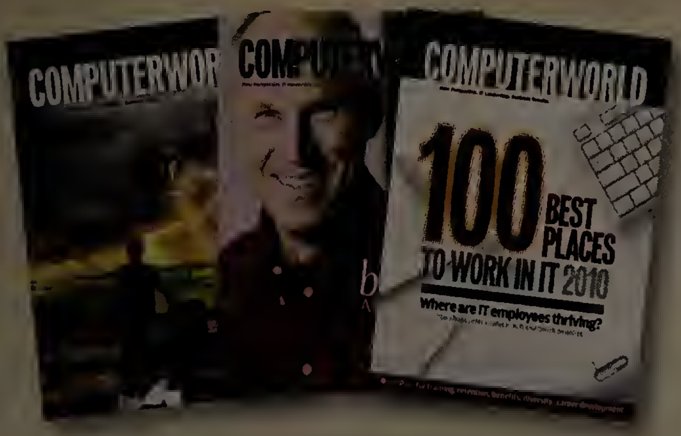
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Career Watch

Jobs of the Century?

A list touting the top 10 jobs for the 21st century has to be taken with a grain of salt, perhaps one the size of a comet. Because, let's face it, if someone in 1912 had presumed to predict the best jobs overall for the 20th century, software engineer would not have been in the running. Who knows what strange new job descriptions will be developed in the next nine decades? **Nonetheless, here are three IT jobs that landed at or near the top of one such list.**

1	3	5
Software developers, applications	**Software developers, systems software**	**Computer systems analysts**
Annual earnings **$87,790**	Annual earnings **$94,180**	Annual earnings **$77,740**
Job growth, 2008-18* **34%**	Job growth, 2008-18* **30.4%**	Job growth, 2008-18* **20.3%**
Annual openings **21,840**	Annual openings **15,340**	Annual openings **22,280**

**Job growth projections from U.S. Bureau of Labor Statistics*

SOURCE: LAURENCE SHATKIN, CO-AUTHOR OF *BEST JOBS FOR THE 21ST CENTURY.*

ASK A PREMIER 100 IT LEADER

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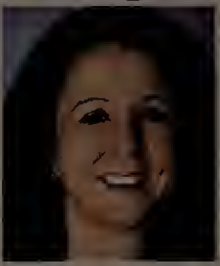

Marriott's chief information resources officer for the Americas answers questions about **certifications, winning a promotion and more.**

I'm a network administrator who is committed to keeping current with technology. Lately, though, I've been hearing negative things about certifications. Are they worth the investment of time and money, or should I pursue other training opportunities? Rather than look at the certification as a unique event, think about what you want in your career. A career is a balance between education and experience driven by what you want to pursue. Education comes in a variety of forms, be it a degree, a certification or hands-on training provided by your company. Employers view all of these components differently, so focus on what makes sense to you, including what you are most interested in (learning is easier when you're excited about a subject), how you learn (online or in a classroom?), your financial situation (does your employer offer any type of tuition reimbursement?) and what your company looks for when hiring (if certifications are required, then make sure you have them as part of your portfolio of qualifications).

If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com**, and watch for this column each month.

I'd like to become an IT director the next time the opportunity arises. What would help me stand out among a field of candidates? Take the time to understand your company's criteria for selecting an IT director. Look at other people who have been promoted to those positions and get an understanding of the qualities that they brought to the table. Then take a hard look at your skills and experience and understand the gap between them and what the company is seeking. Once you have ascertained what you need to focus on, build a plan that allows you to develop in those areas. Also, remember that sometimes opportunities are not always upward and that you may benefit from lateral moves to gain experience.

I've been a systems administrator for a while, but I'm becoming more and more interested in security (by way of very interesting interactions with our excellent Infosec staff). Any ideas on how to move into that area? Take advantage of your information security colleagues. If possible, arrange one-on-one meetings over lunch or coffee, or by phone if you're not in the same office. This will allow you to gain some insight into what the group looks for in terms of qualifications and experience. Find out if there are some projects underway that require the involvement of your current organization with the security team, then ask your manager to see if you can be assigned to them. Outside of work, look for local trade associations and organizations that focus on security. Attend their meetings so you can network with people in that field to understand job opportunities and how to prepare for them.

ILLUSTRATION BY ADIMAS / FOTOLIA

Sr. Software Developer (Atlanta, GA) Research, design, develop and test software. Email resume with cover letter to Global HR Manager, Quickparts.com, Inc., at resume@quickparts.com.

IT Firm in Indianapolis, IN has multiple openings for various senior positions.
Sr. Swr Engineers/Cognos Dvlpers/Sr. .Net Dvlpers (code #1202):
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Research in Motion Corporation (US), Cary, NC, positions are available:
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Livelink System Administrators. Multiple positions. Install, upgrade & maintain OpenText Livelink ECM sys swr on multiple environments. Reqs BS or foreign equiv, in Eng(any),CS or related w/5 yrs exp in job offered or related technical/analytical role. Job loc: NOVA & unanticipated client sites. May require travel. Mail resume to IMC, 11480 Commerce Park Dr, Reston, VA 20191. EOE.

Surya Systems has multiple openings in Trevose, PA. Computer Systems Analyst: Design, develop SQR & Web reports; Computer Programmer: Programming, developing & testing. Software Engineer: Design, Develop, Test, Implement software applications. Different Positions Req. Master/ Bachelor/foreign equiv. degree plus relevant work exp/ skills. Travel may be required to client sites in U.S. Mail resume: 1 Neshaminy Interplex Dr., Ste#101, Trevose, PA 19053, Attn: HR.

Capgemini (Rosemont, IL), a global systems integrator providing solutions to fin.services industries, is seeking exper. prof. consultants for the following positions: Sr.Managers/ Managers (ref. #Q1-12A) & Lead Consultants (ref. #Q1-12B) to manage consulting teams & client relationships. Also seeking Sr. Consultants (ref. #Q1-12C) to design develop test & implement bus.& financial systems software apps. Consulting projects may involve travel to various unanticipated locations in the US. Email resume to:
amber.easton@capgemini.com & reference appropriate job#. No calls. EOE.

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Openings at 1 Way Solutions, Inc. in Marietta, GA, but may relocate to unanticipated cities across the country: Multiple Software Test Engineers (#0301STE): Develop test scripts and test plan for .NET & Java based real-time multiple applications. Multiple Sr. Data Warehouse Architects (# 0229SDWA): Lead the development of the Data Warehouse & Business Intelligence solutions. Email resume & CL referencing JOB CODE to hr@1way-solutions.com.

Sr. ASP/.NET Application Developer (12 openings) (Marlabs, Inc. Piscataway, NJ). Lead team of software developers for design/development/ testing of ASP/.NET Apps. Analyze client business processes/functional reqs. Interact w/ clients & develop design specifications for 3-tiered RDBMS apps. Lead/manage team on complex projects involving large systems. Perform systems analysis/design, requirement analysis, domain modeling, object oriented design, data mapping/validation. Develop XML/ASP/.NET apps & integrate to RDBMS Databases. EDI / XML Dataset creation/mapping. Transfer data using communication protocols. Develop logic/code, execute installation tasks for software/supported software modules. Write/implement test plans. Plan/coordinate/ review/supervise work of programmers/developers. Req: MS or equiv in Comp Sci, Engg, CIS, Science, Math, Business or related + 2 years exp (or BS or equiv in the above fields + 5yrs exp) in job offered/similar jobs. Exp must include 2 yrs exp developing ASP/.NET applications for Windows & 1 yr exp developing XML tools for data transfer from SQL Server, Oracle, Sybase, Cobol, MySQL, and/or DB2 database. Marlabs, Inc. will accept any suitable combination of education, training and/or experience. 9 AM - 6 PM, Mon - Fri. Salary: $108,368.00. Must be willing to travel/relocate anywhere in the U.S. Submit resume to: Recruitment and Employment Office, MARLABS, INC. Attn: Job Ref#: MAR70250, P.O. Box 56625, Atlanta, GA 30303.

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Research Architect (RA) sought by Hyland Software, Inc. to work in San Jose, CA and Design Mgr., Healthcare Integrations (DM) to work in Cleveland, OH. Please apply online at http://jobs.onbase.com must reference Job Code where indicated to be considered or send resume to HR Department, 28500 Clemens Road, Westlake, Ohio 44145. Must reference job code in cover letter. EOE.

SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH

Why Me?

It's been two weeks since this server problem was reported at a remote site, and with a dozen people already working on the problem, this pilot fish is glad he's not. But eventually the site's manager asks that fish be allowed to help out. I don't know what I can bring to the table, fish tells his boss. All these people have done it before. But the boss sends him anyway, saying, "I don't expect you to find anything, but if anybody can fix it, you can." Fish arrives on site, is shown to the computer – and promptly spots the problem. Team is suitably embarrassed, but fish points out that he'll have to apologize to his boss. And the problem? Sighs fish, "They had been working on the wrong machine for the last two weeks. The first person who went to look at it went to the wrong server, and the rest followed him like lemmings."

Frog-March Fail

This boss has a habit of firing people at 4:45 on Friday afternoons and frog-marching them out of the building under close supervision. And that's how one system operator was pink-slipped – except that she wasn't escorted out, says a pilot fish in the know. The following Monday, a frantic call had to be placed to a consultant because no one but the terminated operator had the password to start up a machine. "When the operator was contacted, she said they'd have to sue her to get it," says Fish. "After several hours and many machine dumps, the consultant was able to reconstruct the password and get the machine up and running. From that point on, more than one person always knew the password – and no one was let go without being carefully watched on their way out."

Urgent, Redefined

Pilot fish at an engineering firm gets a message from a manager in another country: He needs an urgent change to the company's testing software. "I forwarded the email to my boss, who stayed late to talk to the manager over the phone – there's a six-hour time difference between our locations," fish says. "The next day, I was told to go ahead and make the urgent change, so I rushed the fix out and asked the manager to test his change. A week went by: No feedback. Two weeks went by: The manager promised to test the change. Fast-forward six months: The manager has not tested this urgent change. I mentioned this to my boss, who stayed late to talk to the manager on the phone. After a total of nine months, the manager tested the change and informed us that it all worked – but he urgently needed the report modified. Apparently we are having a communication problem over what *urgent* means."

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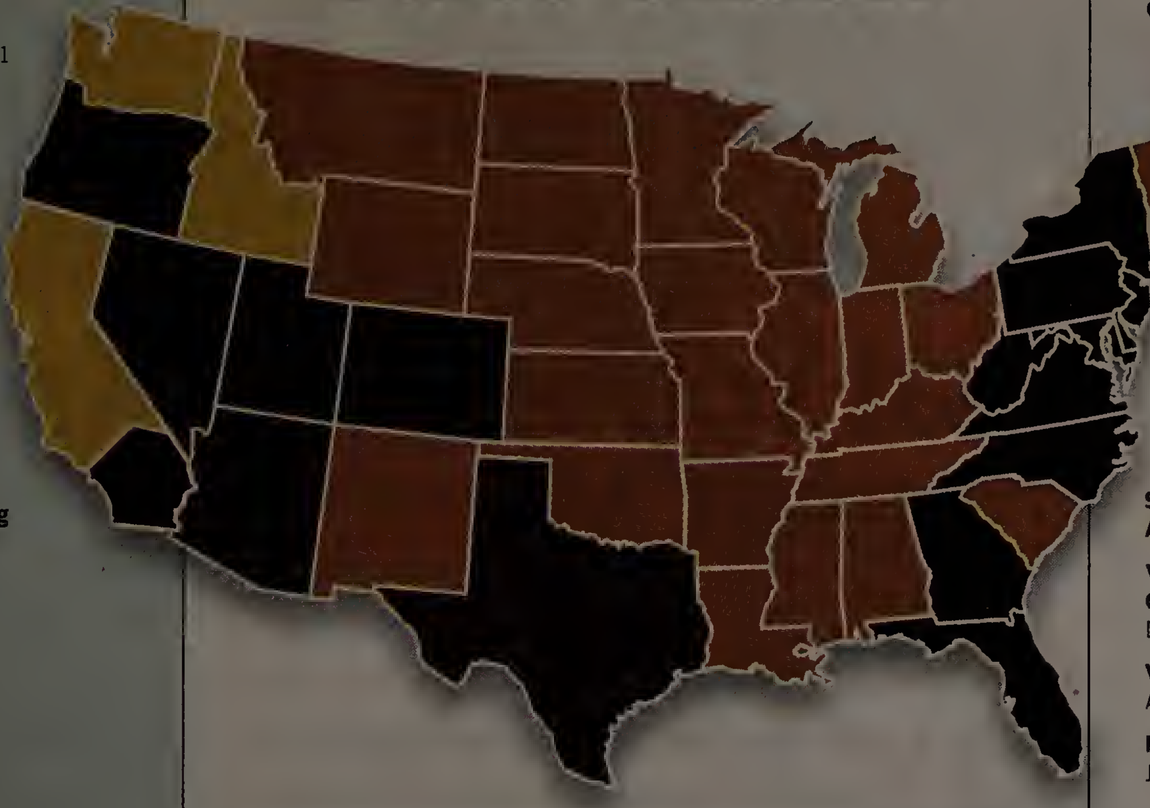

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OPINION

THORNTON A. MAY

What You Need to Know About ECM

> “Information’s ‘findability’ will be a big part of CIO success in the years ahead.

WE ARE AWASH IN INFORMATION. Our organizations house stupendous amounts of it, and even more of it is all around us, freely available to those who can find it. That’s why IT leadership has been shifting its focus from deploying technology to extracting value from information. And it’s why organizations intent on driving change and maximizing value are increasingly talking about enterprise content management (ECM).

So why all the fuss about ECM?

Partly, it’s about the sheer volume of information and the value it represents. Researchers at the McKinsey Institute have come to the conclusion that companies with more than 1,000 employees store, on average, over 235TB of data — more data than is contained in the U.S. Library of Congress. If organizations have library-like data stores, they might want to recall that a prime objective of libraries is to help people find information.

In fact, two of the CIOs I talked to as I did a “walkabout” on ECM, Stephen Laster of Harvard Business School and Tom Murphy of Amerisource-Bergin, believe “findability” will be a big part of CIO success in the years ahead. And organizations that are embracing ECM are converting findability into competitive advantage. A classic example is the Cognizant 2.0 system.

The Association for Information and Image Management defines ECM as “the strategies, methods and tools used to capture, manage, store, preserve and deliver content and documents related to organizational processes.” Clearly, the AIIM is talking about more than records management and workflow issues. And it’s referring to *all* content, not just paper, structured data and content inside the enterprise. Yes, there is an extra-enterprise component of ECM. Twenty years ago, 80% of the information that workers needed to do their jobs resided within their companies. Now, only 20% does. Forrester Research estimates that every worker spends one day a week looking for information to help him do his job. For the 20% of that information that resides within the enterprise, Gartner, IDC and others estimate that 80% to 90% of it is submerged in IT systems and not accessible.

So what does a modern ECM system look like? These are the features I keep coming across:

- An enterprise Facebook that allows employees, partners and customers to publish their expertise and lets the community validate it.
- An enterprise Google that lets people search secured databases while also accessing public ones.
- An enterprise Wikipedia that lets corporations make their intellectual property available to their own teams without exposing it to competitors.
- An enterprise YouTube that lets technical managers explain complex topics via a medium that is compelling and effective.
- An enterprise Twitter that lets people in crisis situations keep their colleagues abreast of late-breaking news.
- An enterprise Yelp for key issue areas. Such content platforms not only provide information, but also give information-seekers a common layout for every issue. Yelp presents its diverse content in a standardized, easy-to-use format, making the information easy to find and understand.

If your organization has not started to talk about ECM, it needs to begin now. ECM is not what you think it is. And it is critically important. ◆

Thornton A. May is author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College in Jacksonville. You can contact him at thorntonamay@aol.com.

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